

STAPLES MILL ROAD SMALL AREA PLAN

Staples Mill Road Small Area Plan Phase 2

Stakeholder Group Meeting 3
September 8, 2022

Agenda

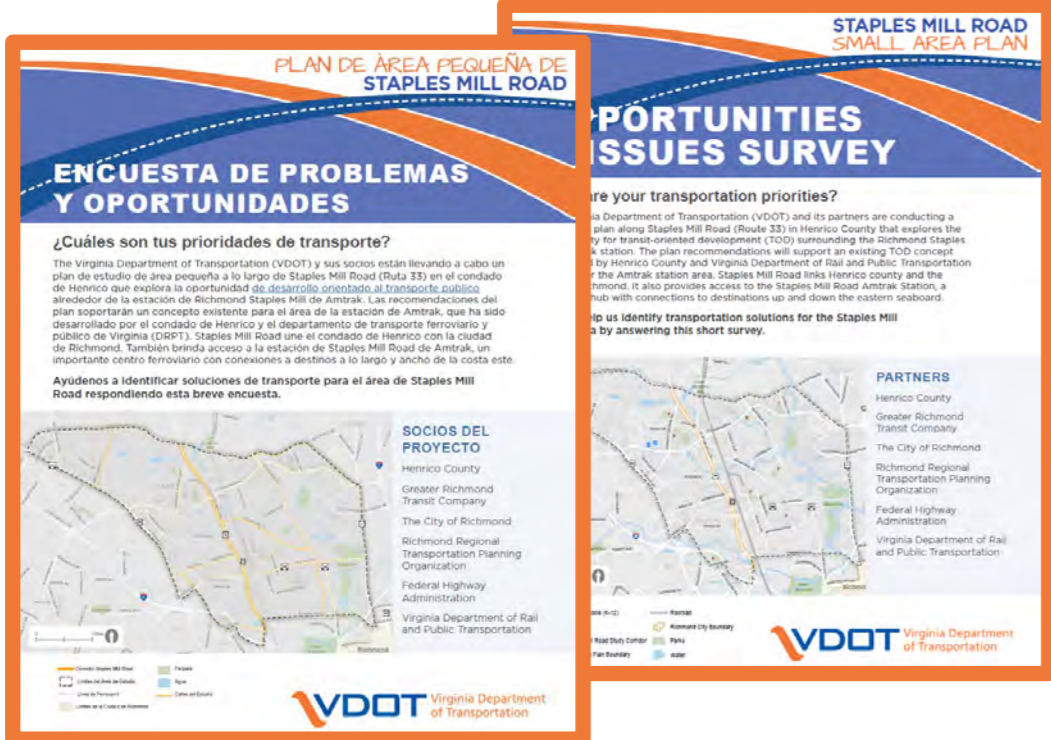
- Ongoing Work
- Alternatives Analysis
 - Community feedback
 - Goals-based screening
 - Additional Analysis
- Next steps
 - Remaining Milestones
 - After the Study

Public Outreach



Community Engagement

Survey #1



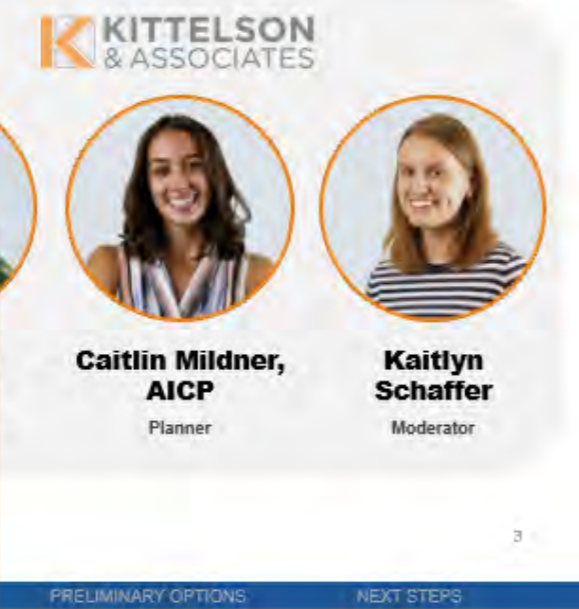
1,200+ Responses

2

Virtual Stakeholder Group Meetings



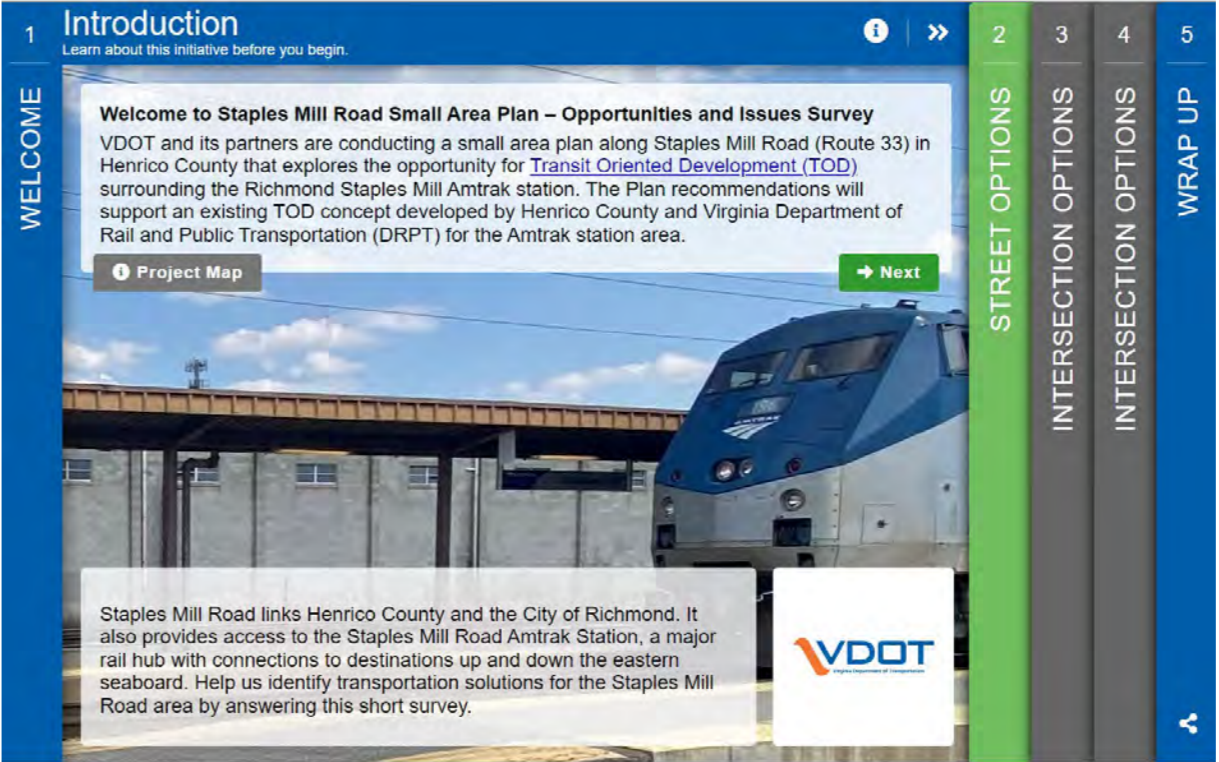
Today's Speakers



2

Online Public Meetings

Survey #2



1,000+ Responses

In-Process Documents

- Phase 2 Public Engagement Memorandum
- Alternatives Analysis Matrix
- Planning Level Cost Estimates
- Dedicated Transit Lanes Analysis

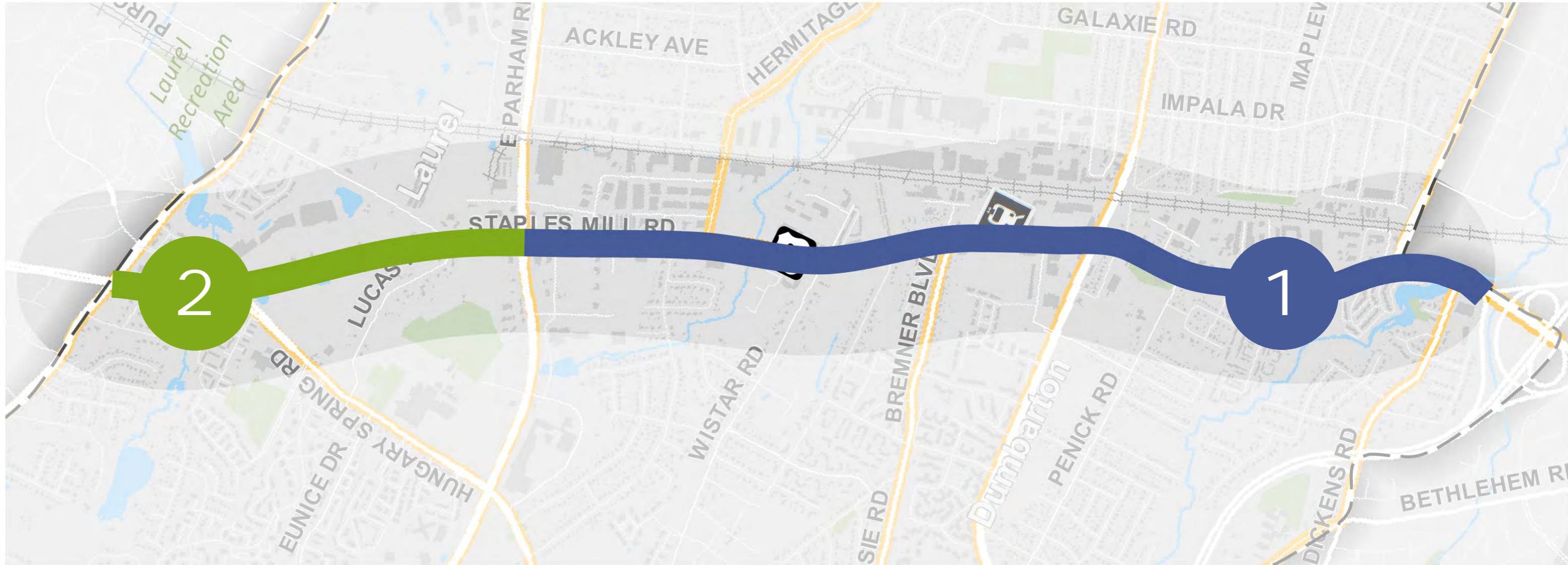


Alternatives Analysis



Corridor Sections

- 1. **South of E Parham Road:** Three through lanes with median separation.
- 2. **North of E Parham Road:** Two through lanes with median separation.
- Turn lanes are provided at intersections and major driveways.



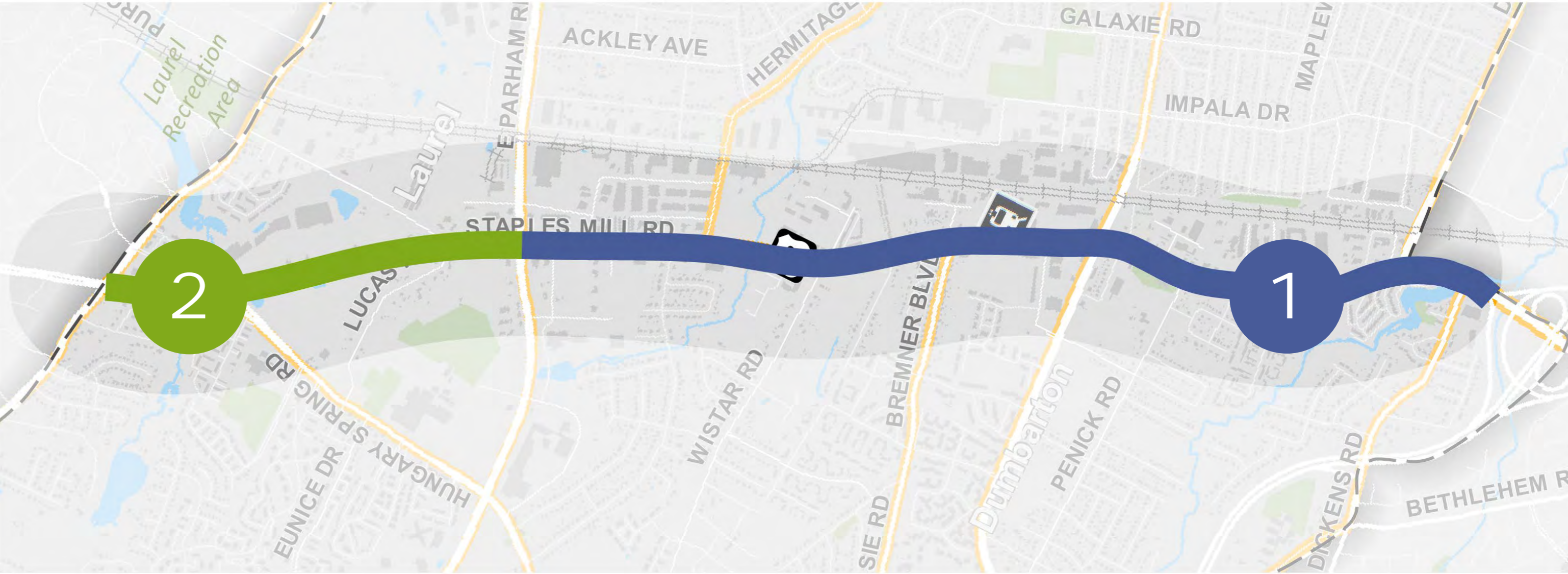
Corridor Issues and Opportunities

“It is extremely unsafe to walk to Broad Street or Staples Mill where some of the buses are. Should be sidewalks along these roads or some type of **multi-use trail to get around.**”

“Current community character lacks actual community. This area is built for cars, not people.”

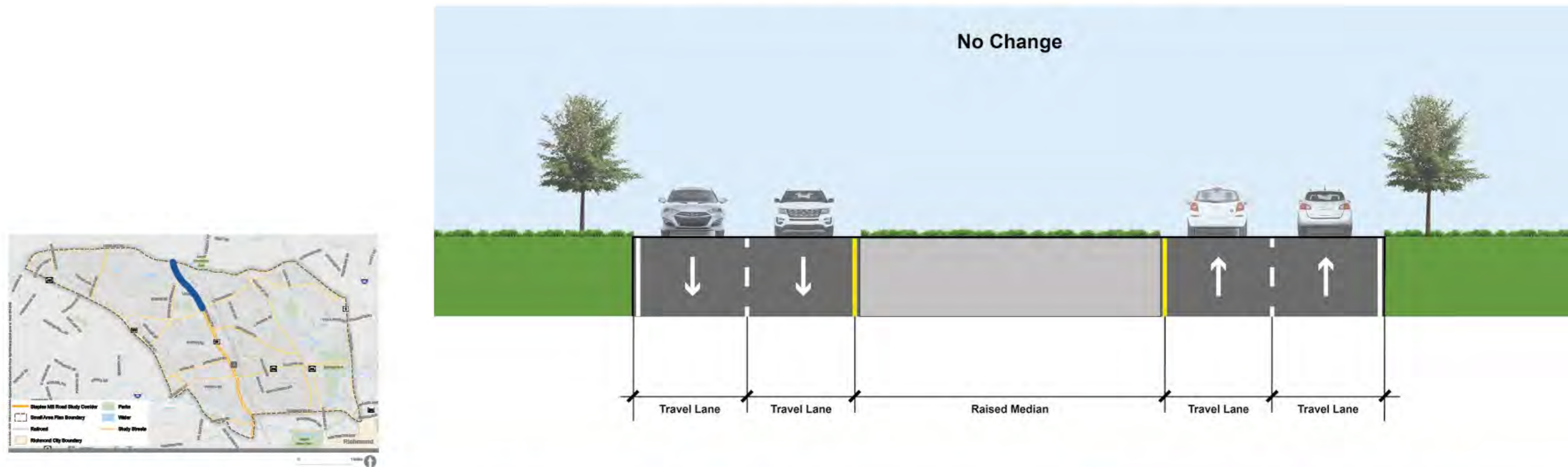
“Creating a safe connection for bike/ped users would **improve job access...**”

– *Issues and Opportunities Survey*



Staples Mill Road North of E Parham Road (Existing)

North of E Parham Road: Existing

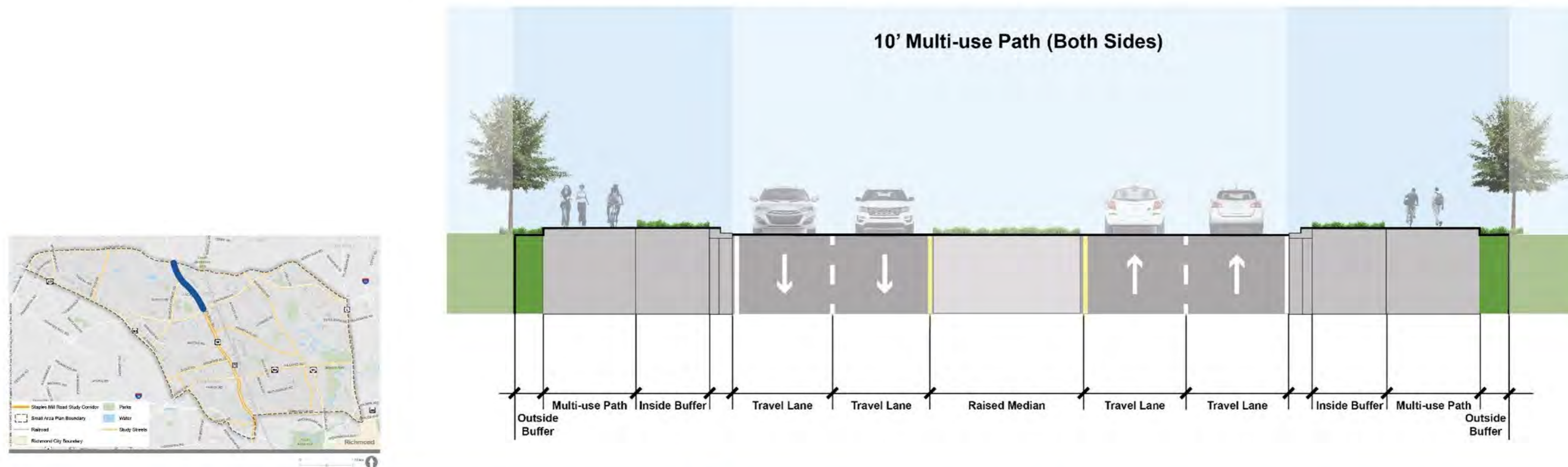


| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|---|---|
| No buffer between non-motorized users and motorists. | Incomplete sidewalk discourages bicycle and pedestrian use. Buses experience slower travel times in general purpose lanes. | ADA-accessible facilities are missing on one or both sides of the street. | Sidewalk is disconnected from employment and transit. | No right-of-way impacts or drainage impacts |

“Lack of sidewalks, poorly signaled and protected intersections, and an absence of bicycle” and transit infrastructure are a major obstacle to growth in this area.” – *Transportation Options Survey*

Staples Mill Road North of E Parham Road (Option A)

North of E Parham Road: Shared Use Path and Mixed Transit Lane



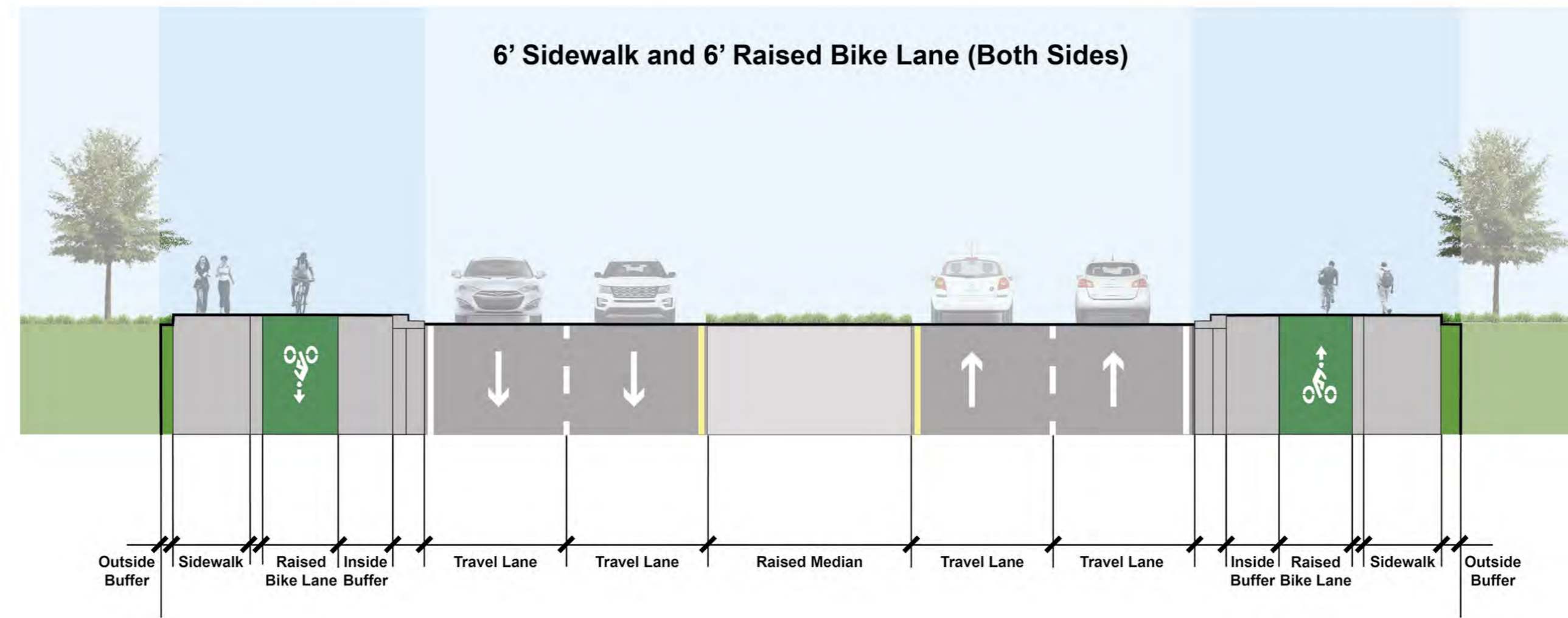
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| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|---|---|
| Buffer between non-motorized users and motorists for some of street segment. | Shared-use path encourages bicycle and pedestrian use. | ADA-accessible facilities are present on both sides of the street. | Shared-use path is connected to employment and transit. | No right-of-way impacts and minor drainage impacts. |

“I think the shared use path option is ideal. Limits the construction needed for both sidewalks and a bike lane, but provides safe access for both pedestrians and bikers.” – *Transportation Options Survey*

Staples Mill Road North of E Parham Road (Option B)

North of E Parham Road: Sidewalk, Bike Lane, and Mixed Transit Lane



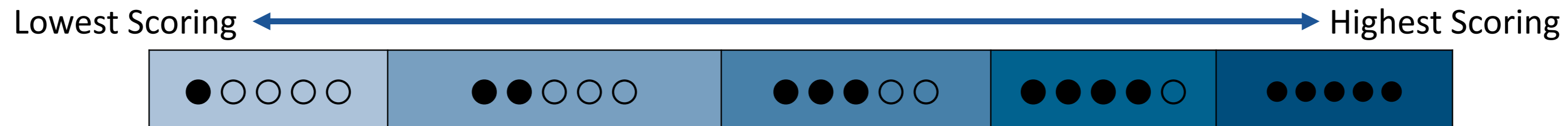
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| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|--|---|
| Buffer between non-motorized users and motorists for some of street segment. | Continuous sidewalk and separated bicycle facility encourage bicycle and pedestrian use. | ADA-accessible facilities are present on both sides of the street. | Sidewalk and bike lanes are connected to employment and transit. | No right of way impacts and minor drainage impacts. |

“Cyclist-specific infrastructure with grade separation is the way to save this corridor. This plan is fantastic and will make economic and environmental improvements while making things safer.” – *Transportation Options Survey*

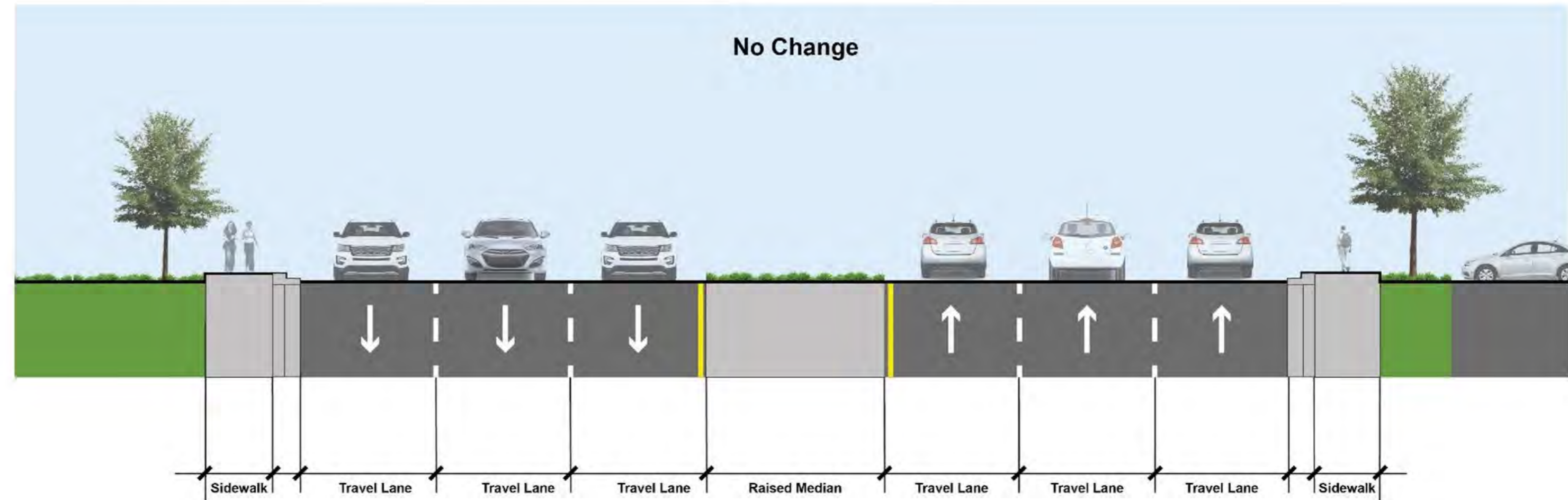
Staples Mill Road North of E Parham Road

| | | Manage Congestion | Community and Environmental Health | Support Economic Development | Improve Safety and Comfort | Reflect Community Character | Survey Ranking |
|--------------------------------|--|-------------------|------------------------------------|------------------------------|----------------------------|-----------------------------|----------------|
| Along Staples Mill Road (1 mi) | No-Build | ●●○○○ | ●○○○○ | ●●○○○ | ●●○○○ | ●●●○○ | 1.46 |
| | Option A: 10' Multi-Use Path (Both Side) | ●●●●○ | ●●○○○ | ●●●●○ | ●●●●○ | ●●●●● | 3.63 |
| | Option B: 6' Sidewalk and 6' Separated Bike Lane (Both Sides) | ●●●●○ | ●●○○○ | ●●●○○ | ●●●●○ | ●●●●● | 4.34 |



Staples Mill Road South of E Parham Road (Existing)

South of E Parham Road: Existing

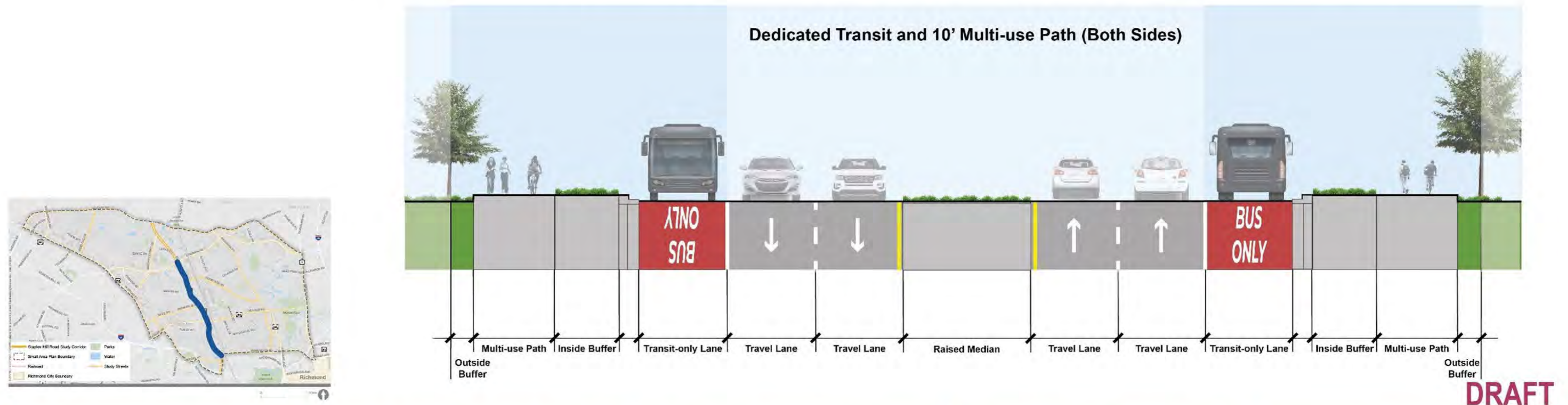


| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|---|---|
| No buffer between non-motorized users and motorists. | Buses experience slower travel times in general purpose lanes. | ADA-accessible facilities are missing on one or both sides of the street. | Sidewalk is disconnected from employment and transit. | No right-of-way impacts or drainage impacts |

“Sidewalks support walking but biking still a challenge.” – *Issues and Opportunities Survey*

Staples Mill Road South of E Parham Road (Option 1A)

South of E Parham Road: Shared Use Path and Curbside Transit Lane

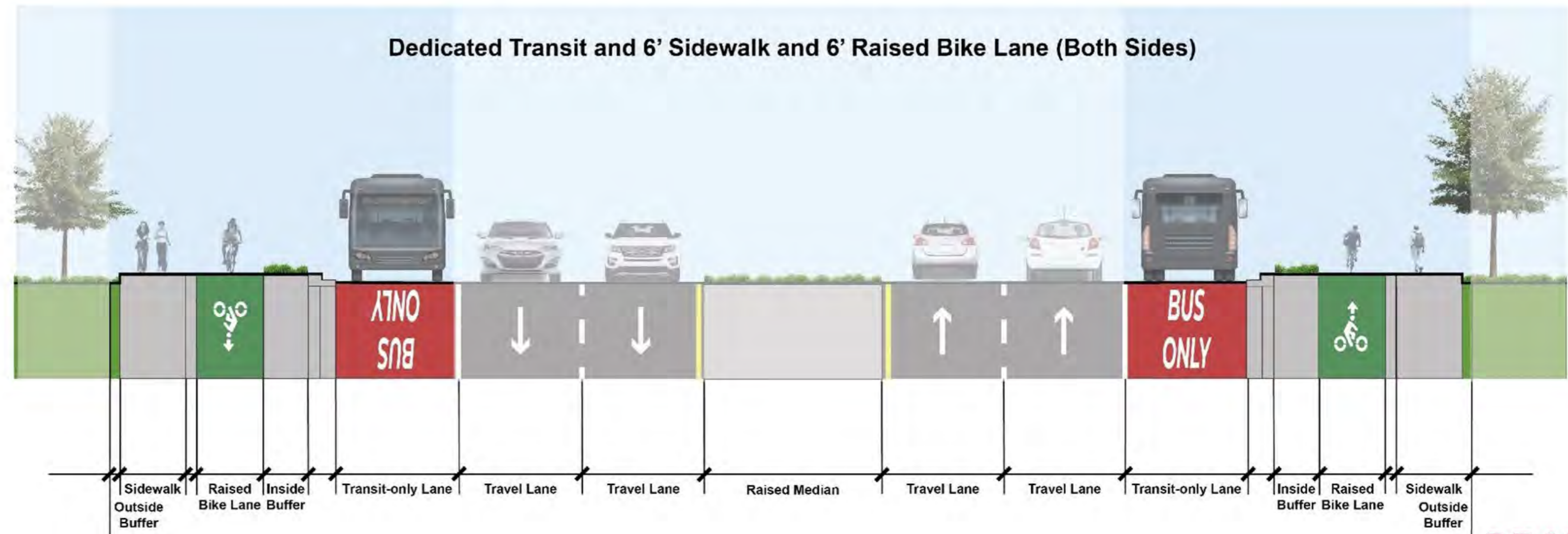


| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|--|--|--|--|
| Exclusive curbside transit lane separates non-motorized users from motorists. | Buses experience reliable, faster travel times in dedicated lanes, and motorists experience increased travel times during rush hour. | ADA-accessible facilities are present on both sides of the street. | Shared-use path is connected to employment and exclusive curbside transit lane in both directions. | Minor right-of-way and drainage impacts. |

“A dedicated transit lane would improve transit frequency and reliability, potentially encouraging some demand to switch from cars to transit and decreasing congestion. It would also improve safety by reducing sudden lane changes from drivers caught behind buses.” – *Issues and Opportunities Survey*

Staples Mill Road South of E Parham Road (Option 1B)

South of E Parham Road: Sidewalk, Bike Lane, and Curbside Transit Lane



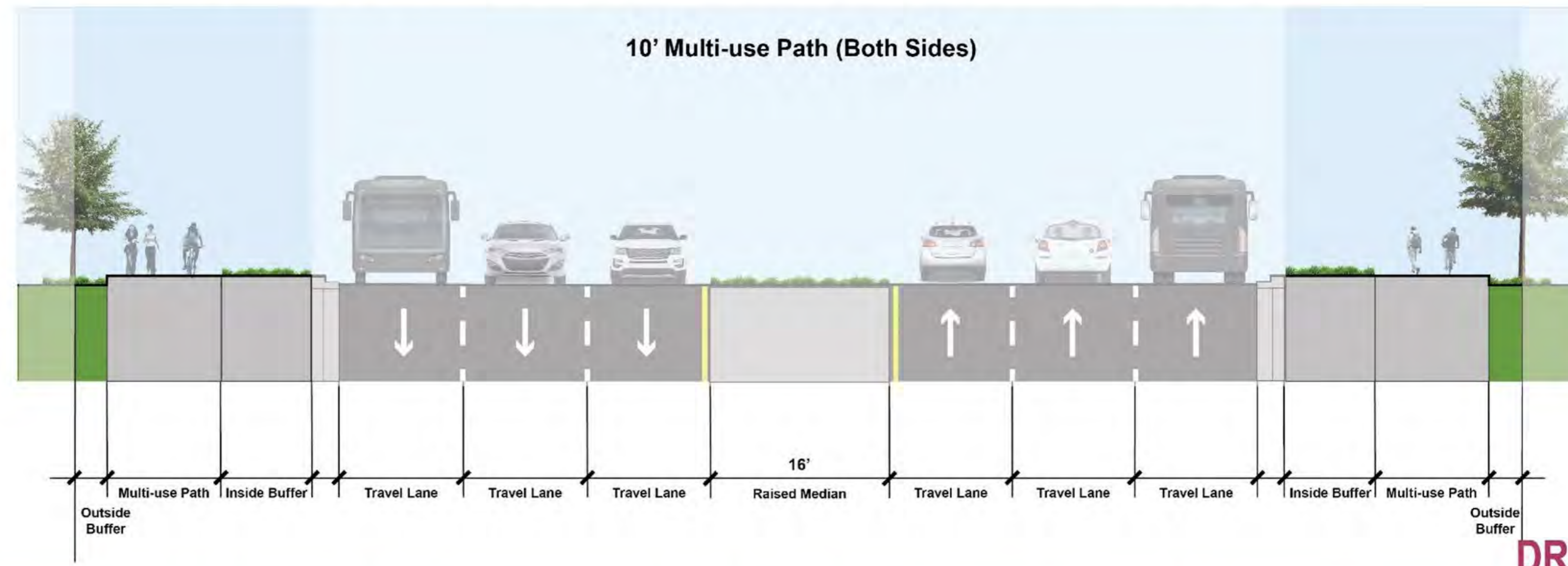
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| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|--|--|---|--|
| Exclusive curbside transit lane separates non-motorized users from motorists. | Buses experience reliable, faster travel times in dedicated lanes, and motorists experience increased travel times during rush hour. | ADA-accessible facilities are present on both sides of the street. | Sidewalk and bike lanes are connected to employment and exclusive curbside transit lane in both directions. | Minor right-of-way and drainage impacts. |

“Having a continuous grade separated throughway makes this area much safer and useful to everyone.” – *Issues and Opportunities Survey*

Staples Mill Road South of E Parham Road (Option 2A)

South of E Parham Road: Shared Use Path and Mixed Transit Lane

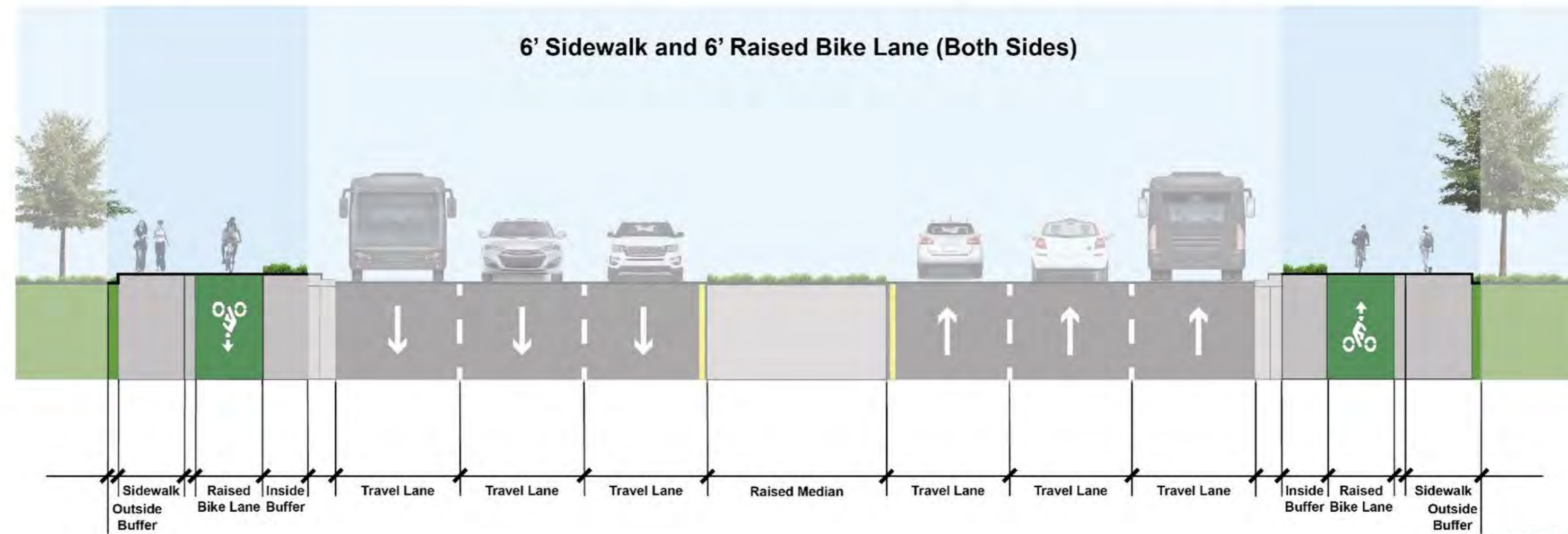


| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|--|--|
| Buffer between non-motorized users and motorists for some of street segment. | Shared-use path encourages bicycle and pedestrian use. | ADA-accessible facilities are present on both sides of the street. | Shared-use path is connected to employment and curbside mixed bus-traffic lane in both directions. | Minor right-of-way and drainage impacts. |

“Given the extremely limited public transit on Staples Mill, it makes more sense to have this "mixed transit" lane” – *Issues and Opportunities Survey*

Staples Mill Road South of E Parham Road (Option 2B)

South of E Parham Road: Sidewalk, Bike Lane, and Mixed Transit Lane



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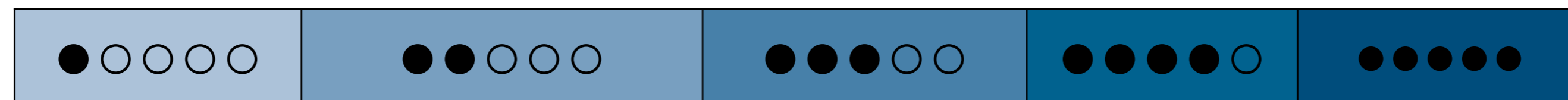
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|---|--|
| Buffer between non-motorized users and motorists for some of street segment. | Continuous sidewalk and separated bicycle facility encourage bicycle and pedestrian use. | ADA-accessible facilities are present on both sides of the street. | Sidewalk and bike lanes are connected to employment and curbside mixed bus-traffic lane in both directions. | Minor right-of-way and drainage impacts. |

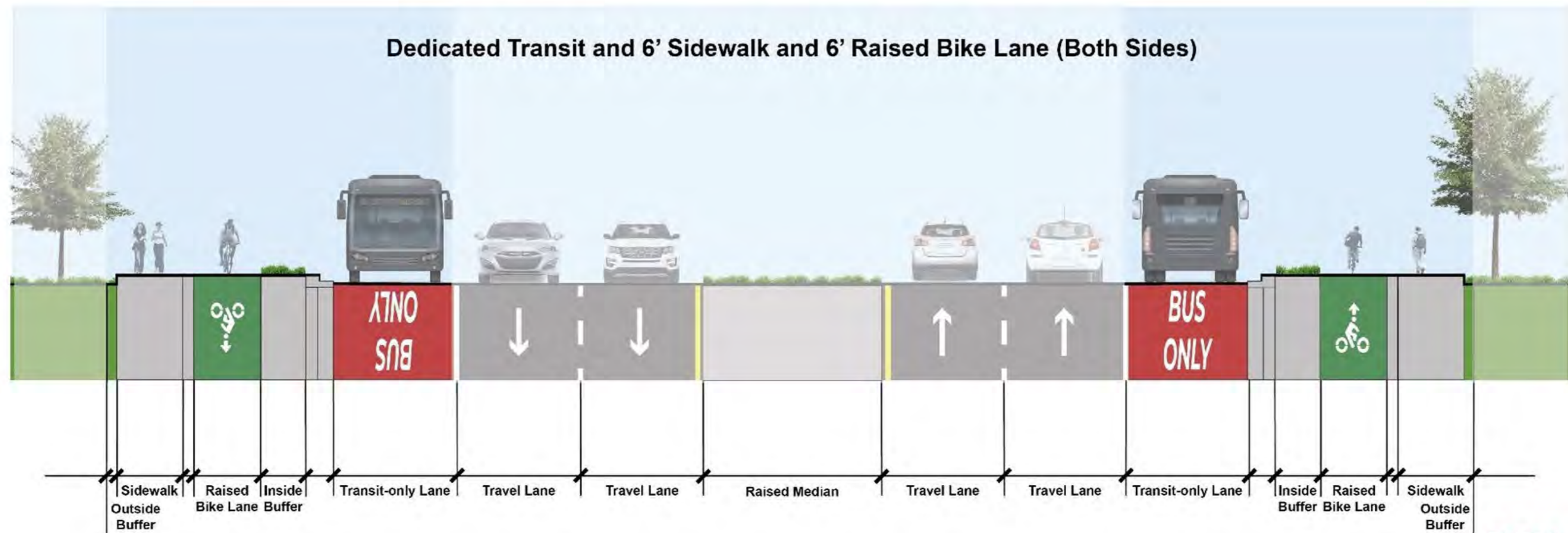
“Good for bikes but if we can increase bus use and reduce car traffic, we are going to want the infrastructure to do so.” – *Issues and Opportunities Survey*

Staples Mill Road South of E Parham Road

| | | Manage Congestion | Community and Environmental Health | Support Economic Development | Improve Safety and Comfort | Reflect Community Character | Survey Ranking |
|----------------------------------|--|-------------------|------------------------------------|------------------------------|----------------------------|-----------------------------|----------------|
| Along Staples Mill Road (2.5 mi) | No-Build | ●●○○○ | ●●●○○ | ●●○○○ | ●○○○○ | ●●●○○ | 1.51 |
| | Option 1A: Dedicated Curbside Transit and 10' Multi-Use Path (Both Side) | ●●●●● | ●●●●○ | ●●●●○ | ●●●○○ | ●●●●● | 3.24 |
| | Option 1B: Dedicated Curbside Transit, 6' Sidewalk, and 6' Separated Bike Lane (Both Sides) | ●●●●● | ●●●●○ | ●●●●○ | ●●●○○ | ●●●●● | 3.94 |
| | Option 2A: Mixed Transit Lane and 10' Multi-Use Path (Both Side) | ●●●●○ | ●●●●○ | ●●●●○ | ●●●○○ | ●●●●● | 3.13 |
| | Option 2B: Mixed Transit Lane, 6' Sidewalk, and 6' Separated Bike Lane (Both Sides) | ●●●●○ | ●●●●○ | ●●●●○ | ●●●○○ | ●●●●● | 3.50 |

Lowest Scoring ← → Highest Scoring





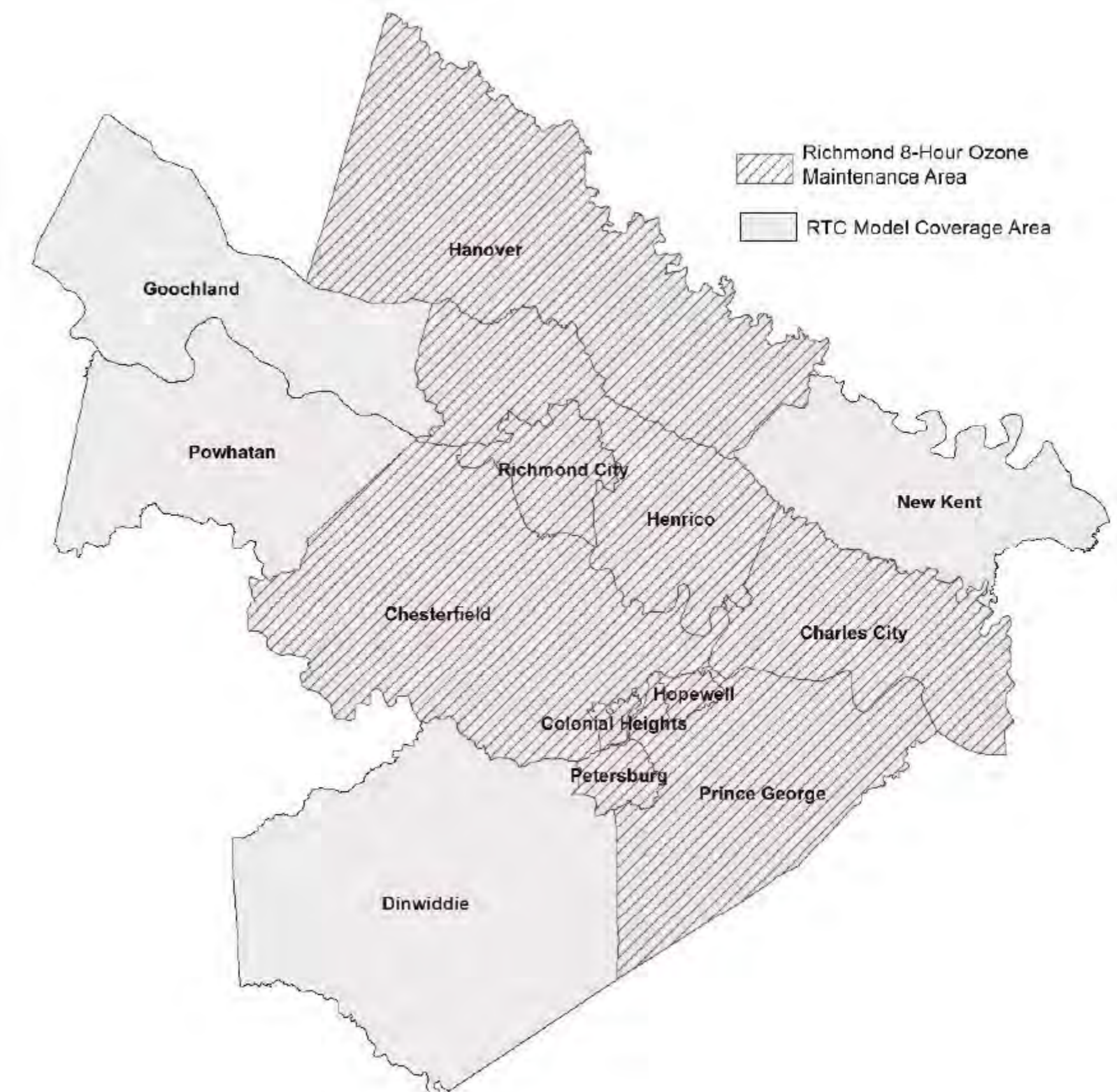
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What are the operational impacts of repurposing a travel lane in either direction to a transit-only lane on Staples Mill Road?

Dedicated Transit Lane Analysis

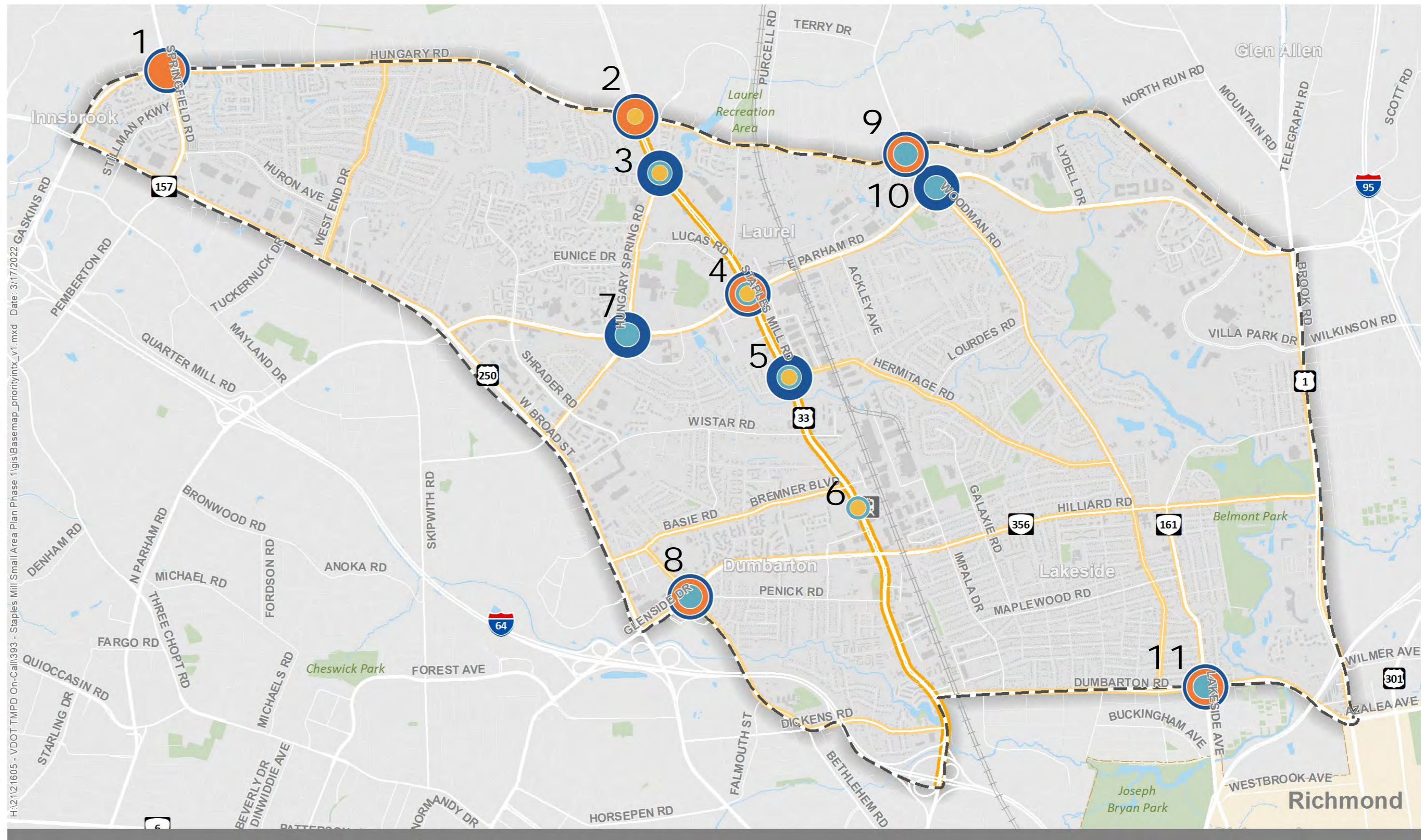
Analysis Tools and Method:

- Richmond/Tri-Cities Regional Travel Demand Model (RTC Model)
- Model 2 scenarios:
 - 2040 No-Build (existing roadway configuration)
 - 2040 Build (transit-only lanes)
 - Dedicated transit: assume amenities and travel times are similar to Pulse BRT
 - Expected mode shift: **+/- 10%** from SOV to Transit
- Compare model outputs to identify percent change in volumes along study streets
- Apply percent change to 2040 Build Synchro model and report intersection-level operational changes



Intersection Options

1. Springfield Rd and Gaskins Rd/Hungary Rd
2. Staples Mill Rd and Hungary Rd
3. Staples Mill Rd & Hungary Spring Rd
4. Staples Mill Rd & E. Parham Rd
5. Staples Mill Rd & Hermitage Rd/Commercial Ent.
6. Staples Mill Rd & Amtrak Station
7. E. Parham Rd & Hungary Spring Rd
8. Glenside Dr & Bethlehem Rd
9. Hungary Rd and Woodman Rd
10. E. Parham Rd and Woodman Rd
11. Lakeside Ave and Dumbarton Rd



Priority Intersections by Issue



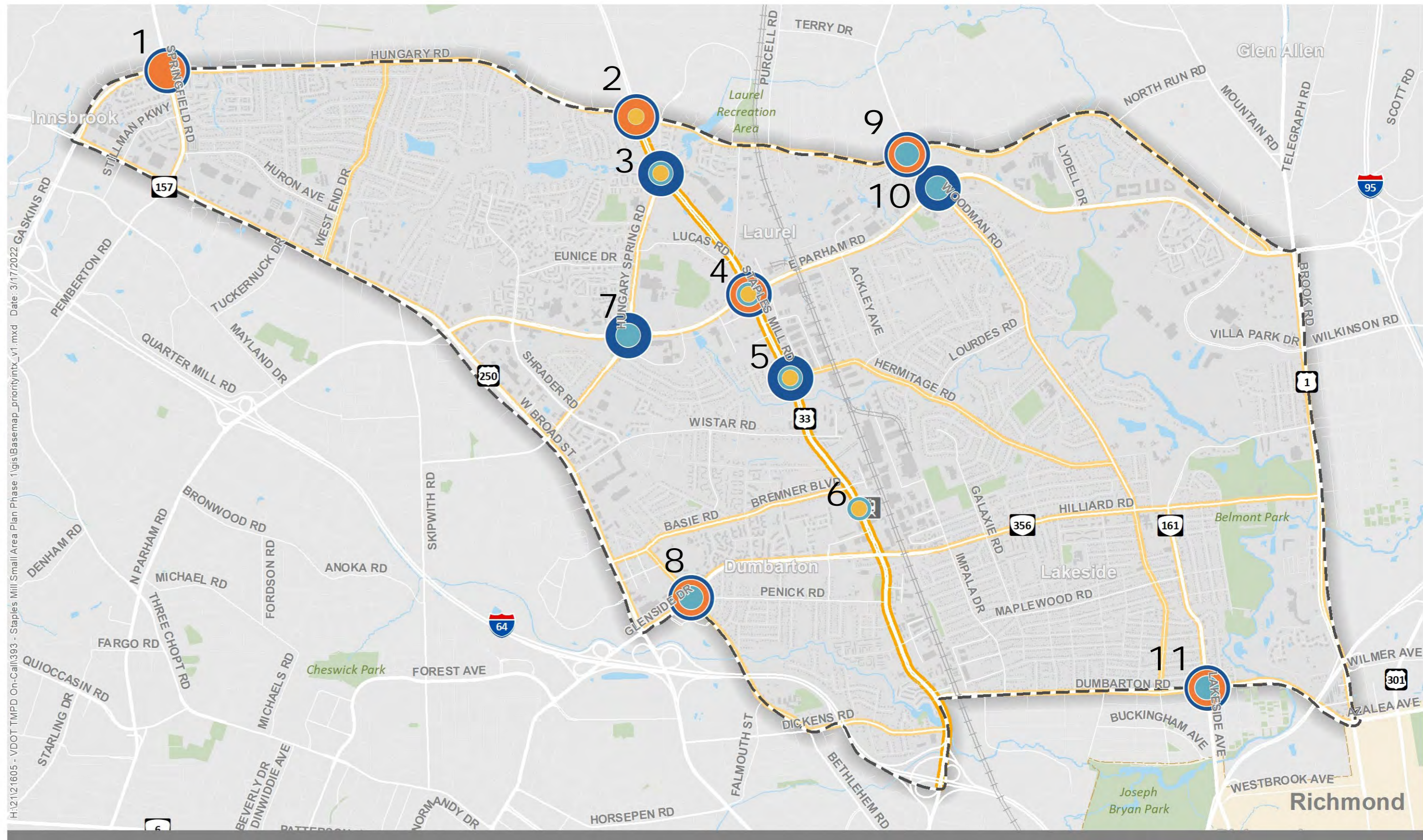
Intersection Issues and Opportunities

“**Streetlighting** is needed badly along this corridor. The bright lights from commercial properties distract and make it **hard to see pedestrians** along the roadway.”

“There is a **lot of foot traffic** on this road and there is not crosswalks or crosswalk signals at the intersections. Some of the sidewalks along Staples Mill need to connect to one another.”

“Connections between the station and buses should be safe and easy. **Walking should be possible.**”

- *Issues and Opportunities Survey*



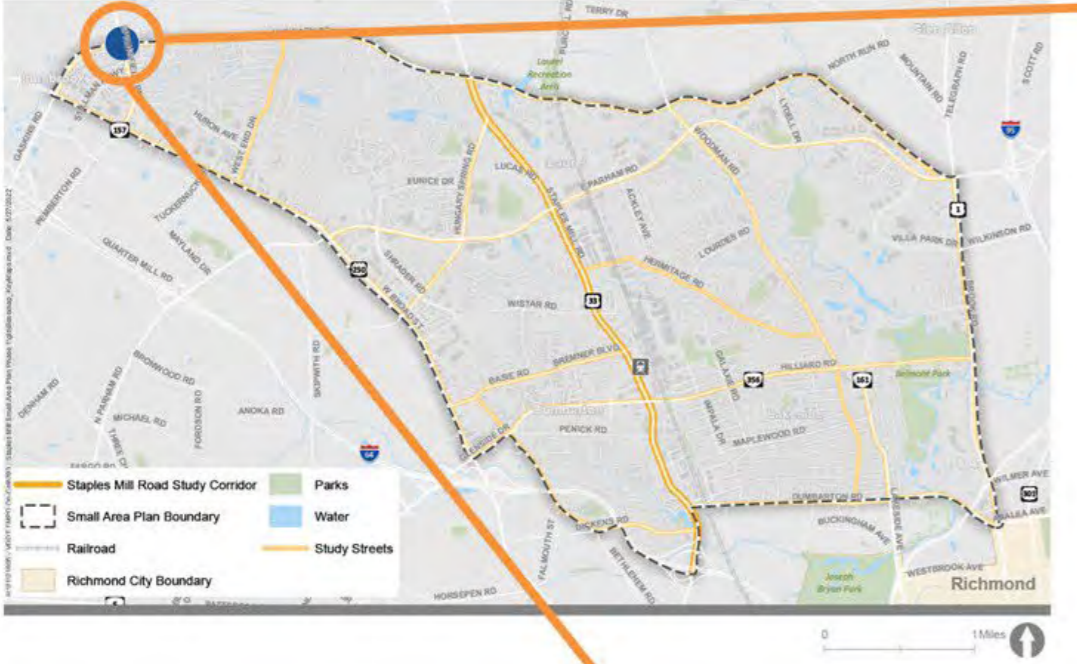
Priority Intersections by Issue

- Community Interest
- TOD Proximity
- Future Congestion (2040)
- Safety Concerns



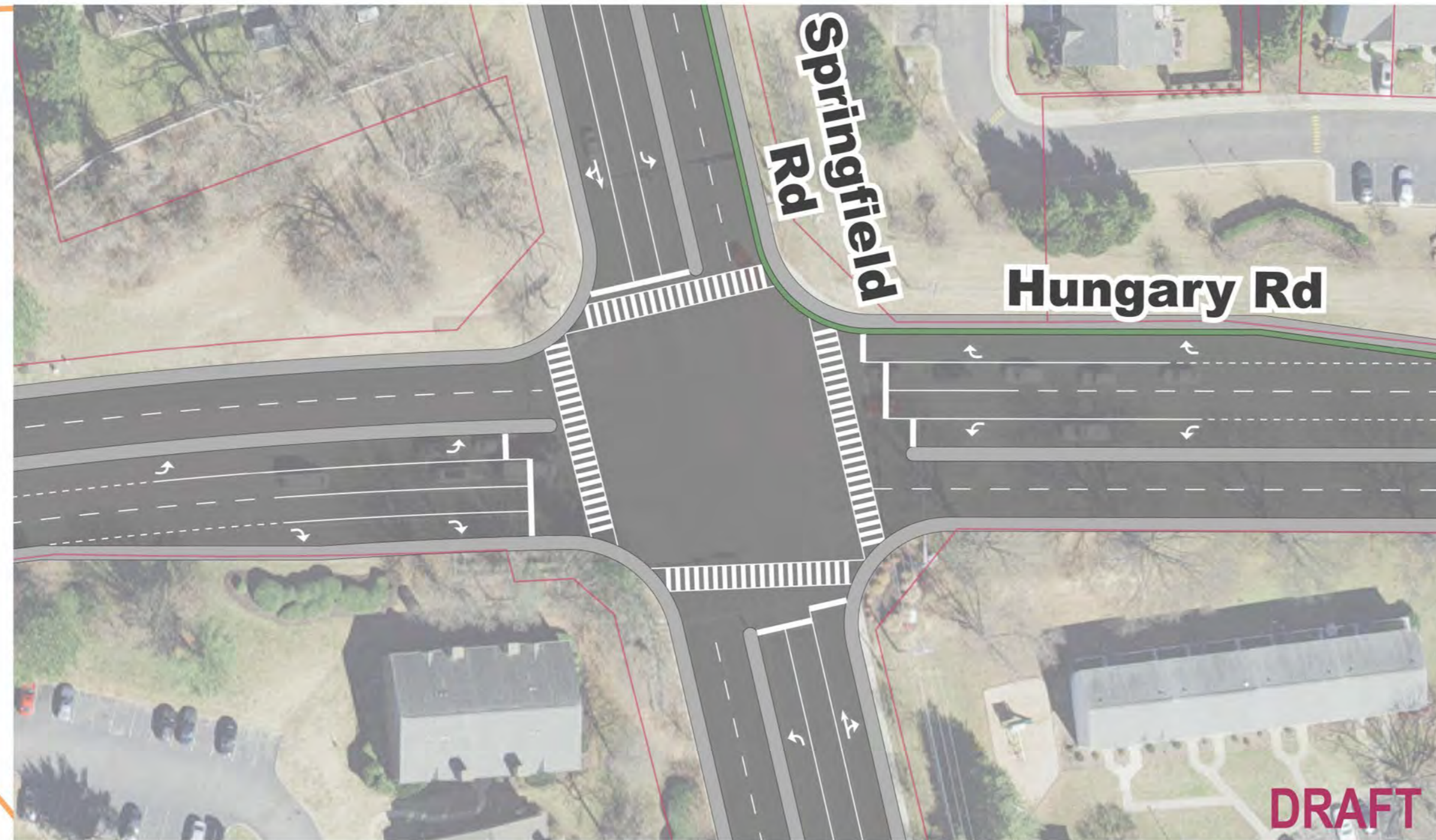
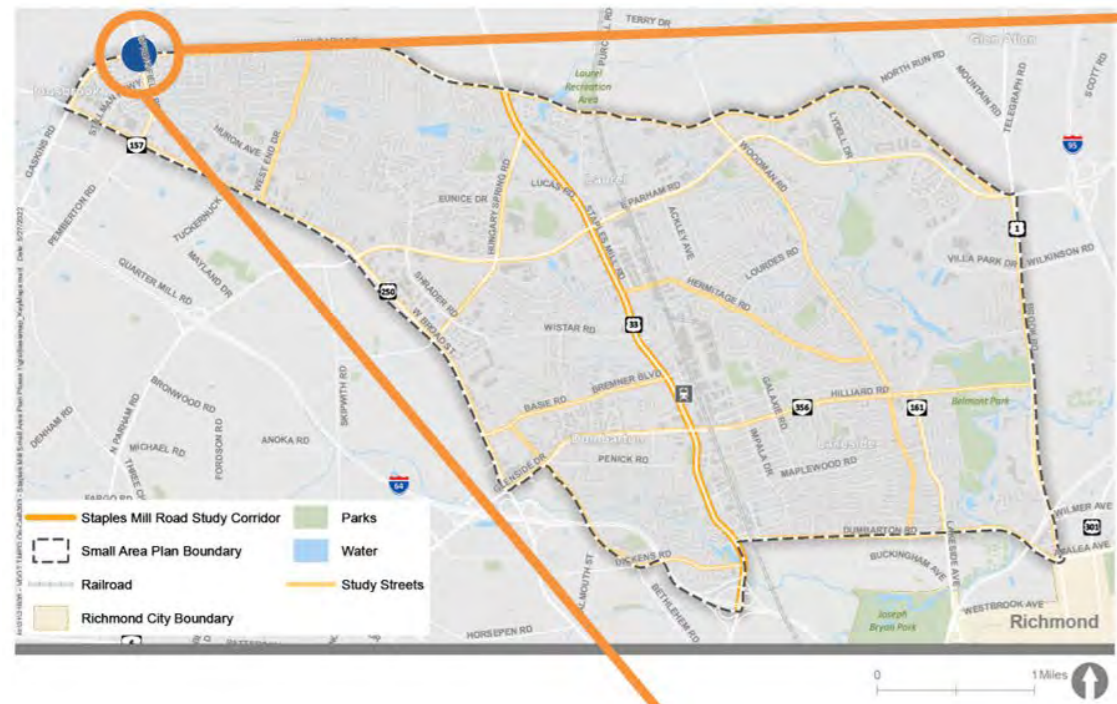
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Springfield Road and Gaskins Road/Hungary Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|---|---|--|
| High crash intersection with no pedestrian crossings. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has many missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment. | No right-of-way impacts or drainage impacts. |

Springfield Road and Gaskins Road/Hungary Road: Concept



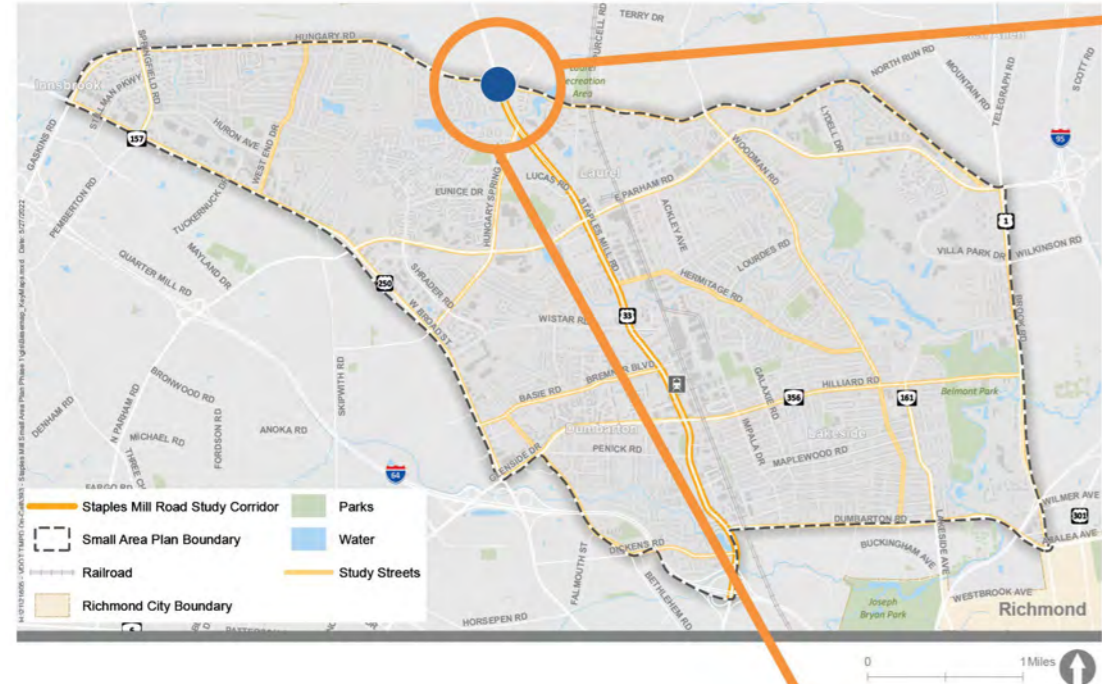
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Intersection Elements

- IMPLEMENT LEADING PEDESTRIAN INTERVAL
- ADD INTERSECTION LIGHTING
- ADD PEDESTRIAN SIGNAL HEADS
- UPGRADE CURB RAMP
- ADD NO RIGHT-TURN ON RED
- ASPHALT
- SIDEWALK/MEDIAN
- LANDSCAPE
- PARCEL LINES

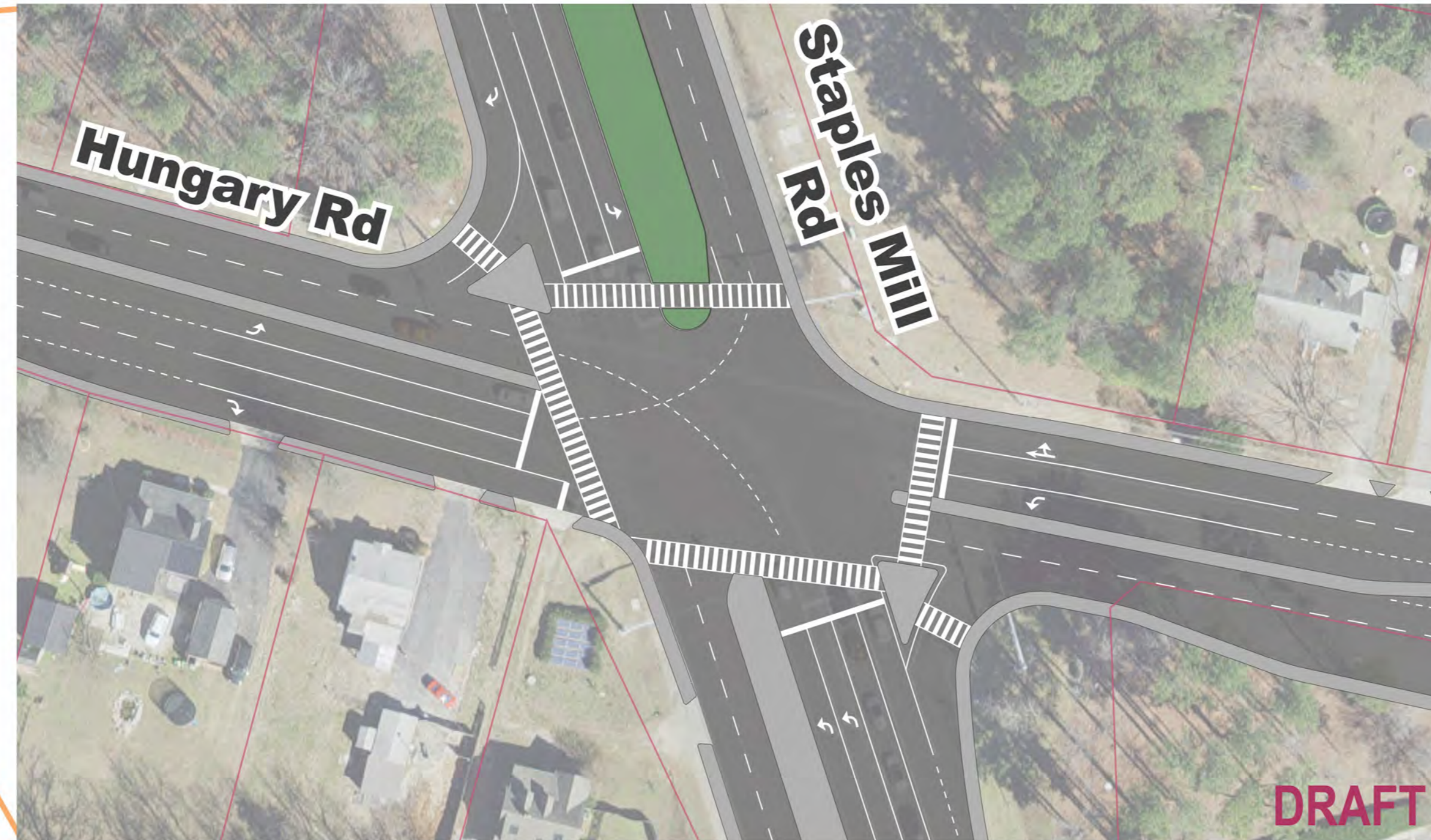
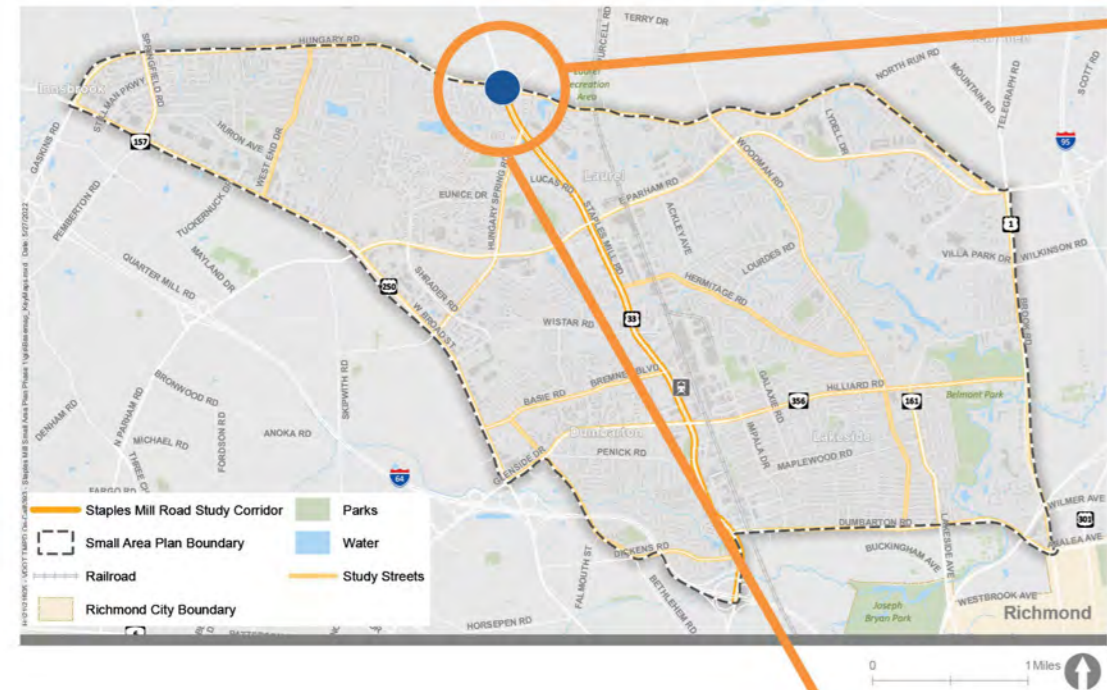
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|---|---|---|--|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment. | Minor right-of-way and drainage impacts. |

Staples Mill Road and Hungary Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|--|---|--|
| High crash intersection with no pedestrian crossings. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has no multimodal facilities for people walking and biking. | No multimodal facilities connected to employment. | No right-of-way impacts or drainage impacts. |

Staples Mill Road and Hungary Road: Concept



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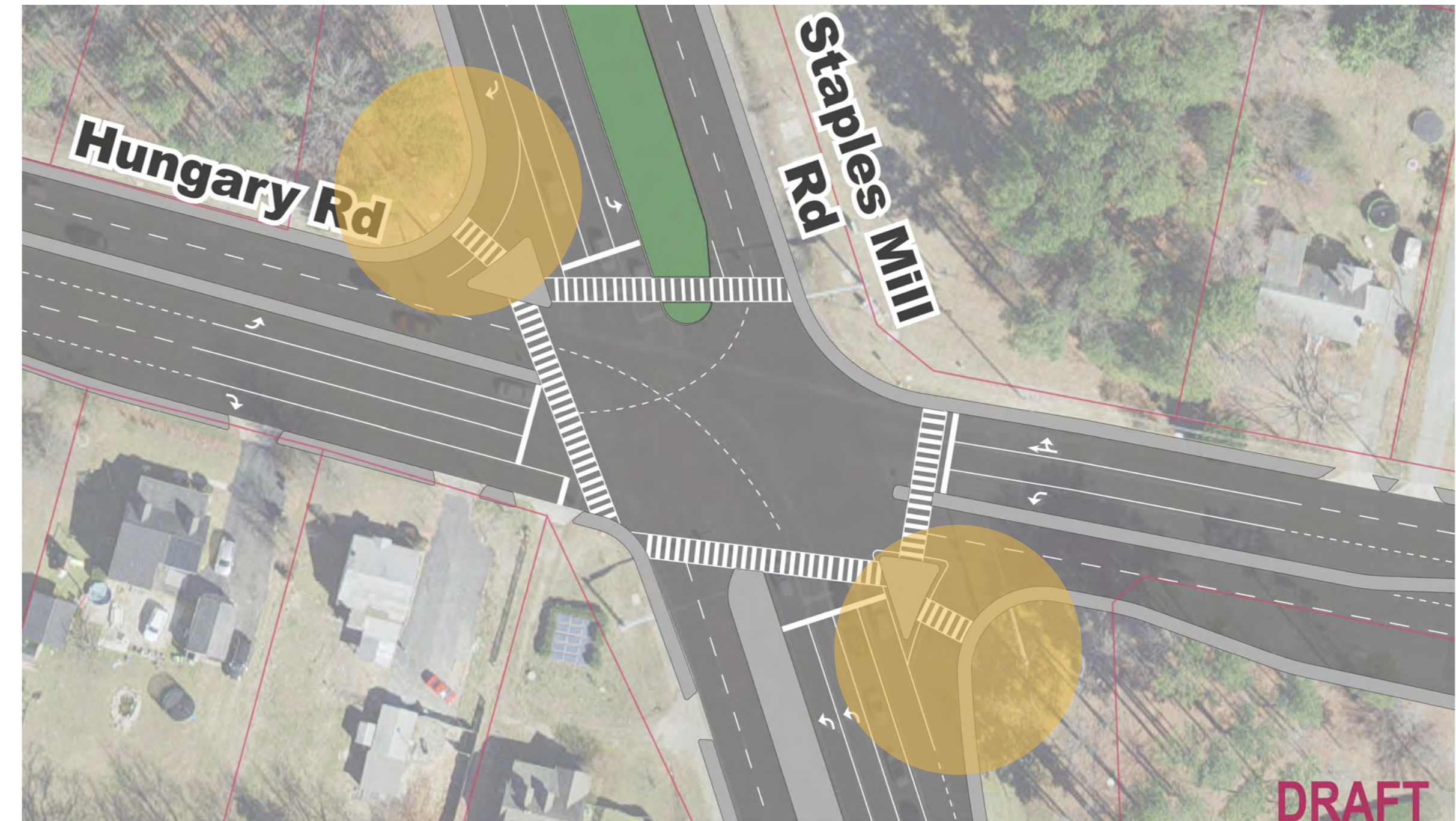
- Intersection Elements**
- ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ADD INTERSECTION LIGHTING
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|--|---|
| <p>Increases pedestrian visibility with crosswalks and signal timing. Reduces crossing distance for pedestrians. Improves nighttime visibility with intersection lighting.</p> | <p>Maintains travel time for cars and reduces pedestrian delay with signal timing.</p> | <p>Improves ADA-accessible crossings for bicyclists and pedestrians.</p> | <p>Provides multimodal facilities connected to employment.</p> | <p>Minor right-of-way and drainage impacts.</p> |

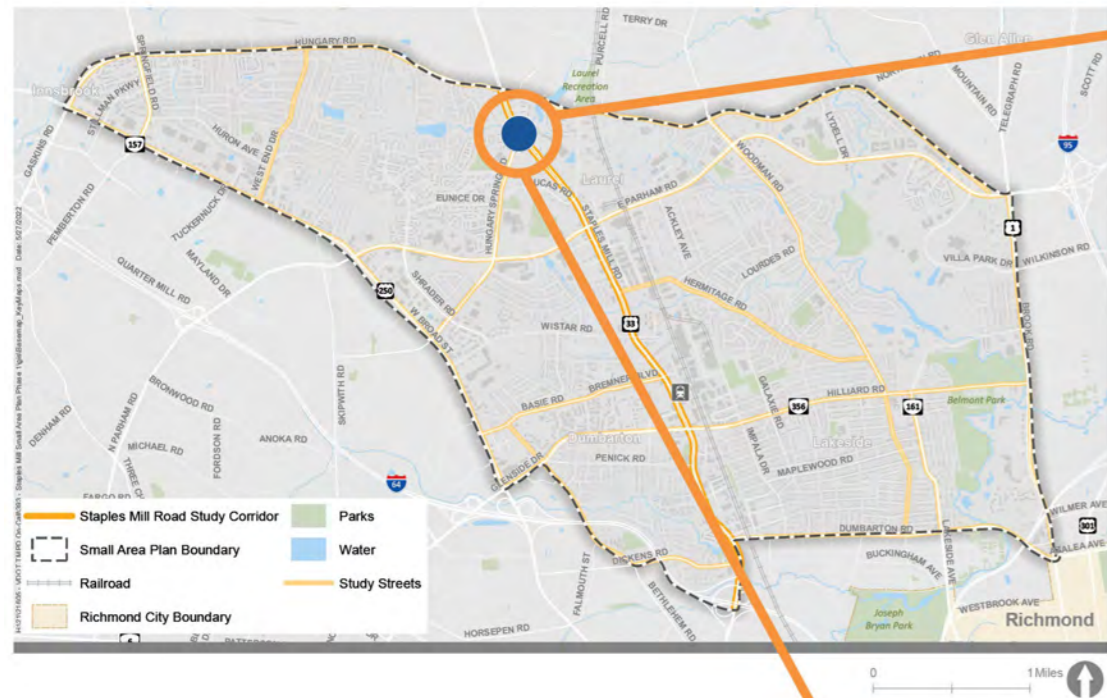
Staples Mill Road and Hungary Road: Concept

Slip lane removal analysis

- Vehicle Delay:
 - AM Peak Conditions: Minor reduction in vehicle delay (-1.6 seconds per vehicle)
 - PM Peak Conditions: Increase in vehicle delay (+11.2 seconds per vehicle)
- Level of Service:
 - AM Peak: No Change
 - PM Peak: No Change
- Maximum Queues
 - Vehicle storage lengths accommodate max queues
- Pedestrian exposure
 - Reduced crossing distances and time
- Freight Access
 - AutoTURN checks needed

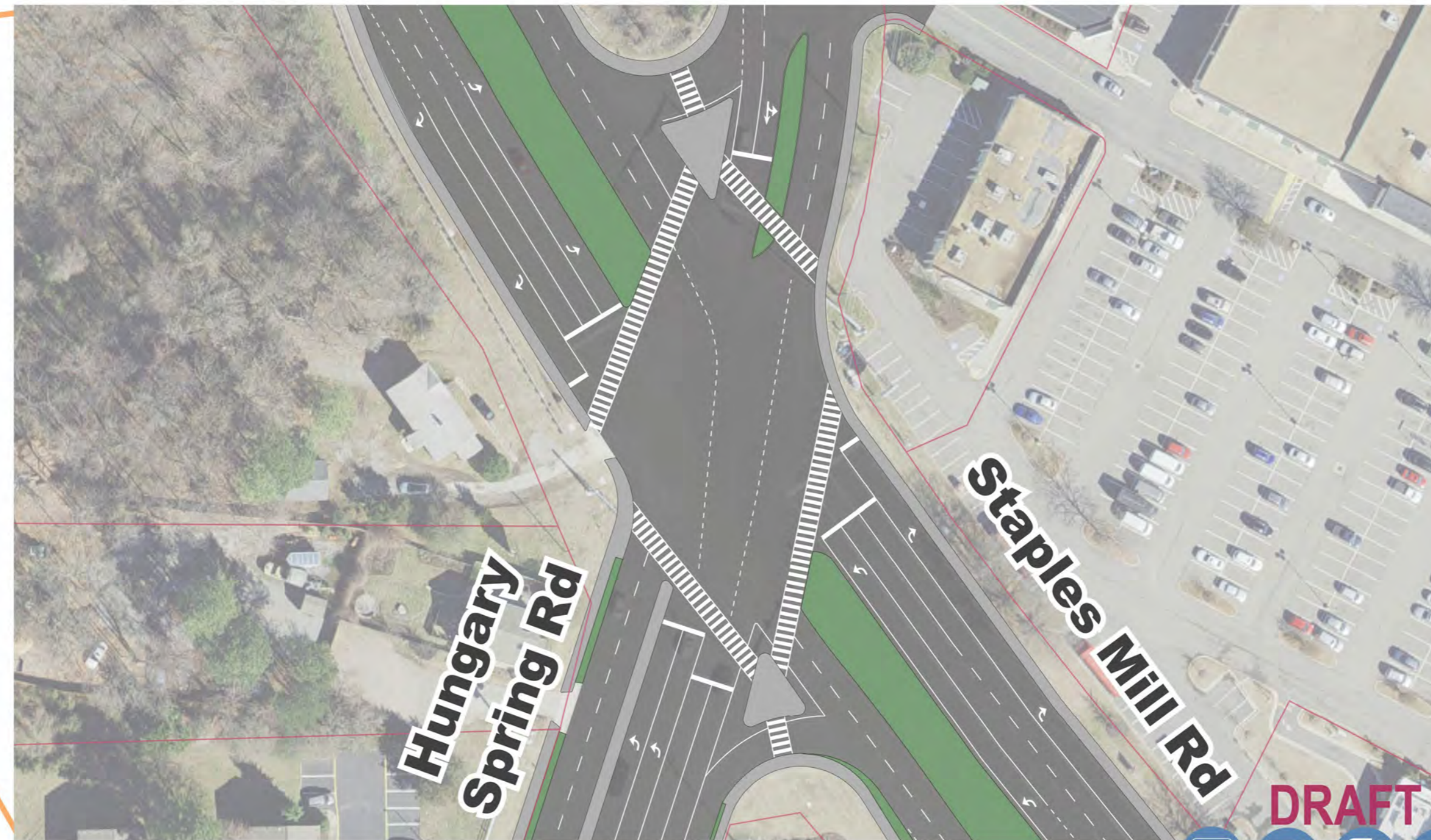
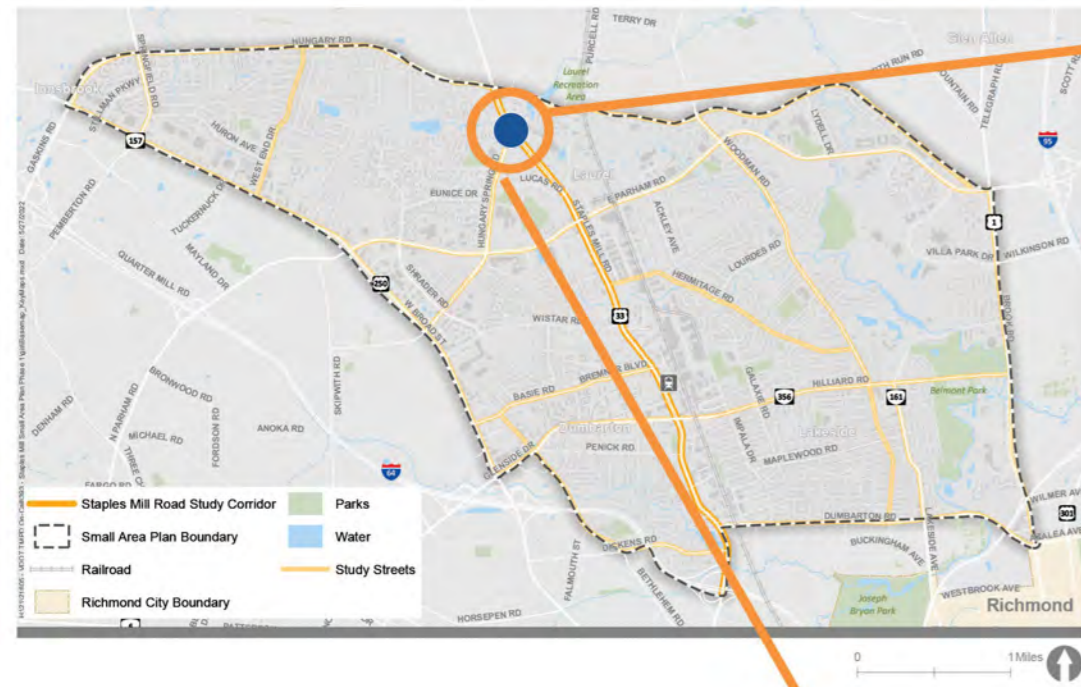


Staples Mill Road and Hungary Spring Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|--|---|---|--|
| High crash intersection with no pedestrian crossings. | Motorists generally don't experience delays. Pedestrians experience delay all day. | Intersection has many missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment. | No right-of-way impacts or drainage impacts. |

Staples Mill Road and Hungary Spring Road: Concept



N
Not To Scale

Intersection Elements

- ADD TRAFFIC SIGNAL MAST ARM
- ADD INTERSECTION LIGHTING
- ADD PEDESTRIAN SIGNAL HEADS
- UPGRADE CURB RAMPS
- ASPHALT
- SIDEWALK/MEDIAN
- LANDSCAPE
- PARCEL LINES

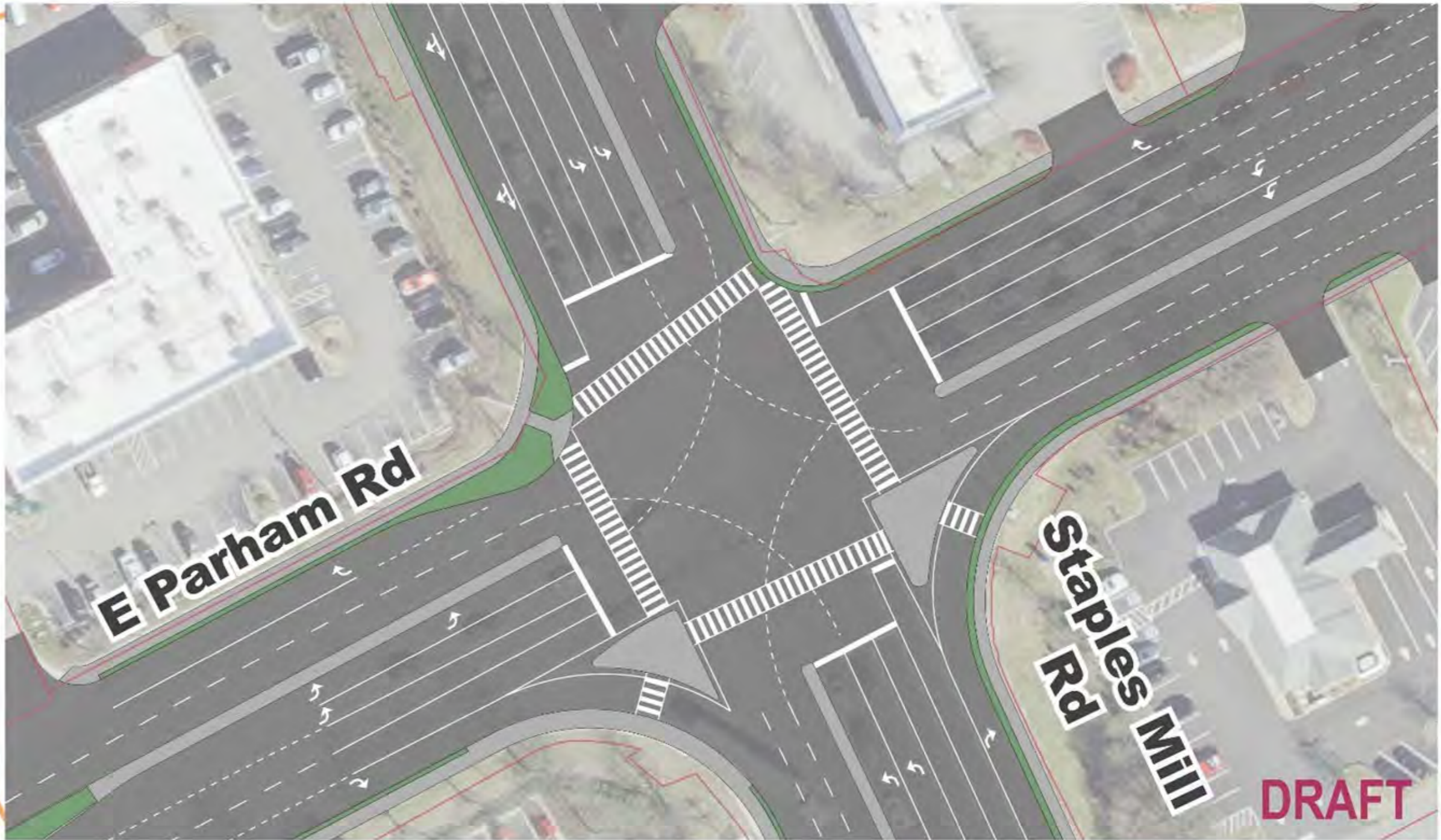
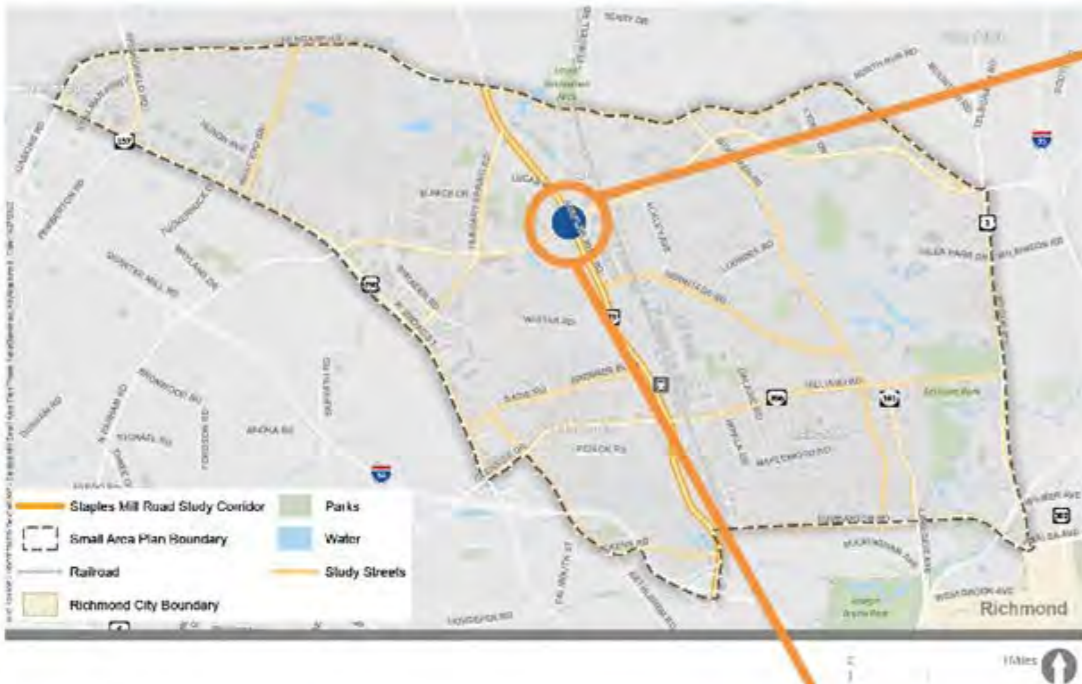
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|---|---|---|--|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment. | Minor right-of-way and drainage impacts. |

Staples Mill Road and East Parham Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|--|---|--|
| High crash intersection with no pedestrian crossings. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment and transit. | No right-of-way impacts or drainage impacts. |

Staples Mill Road and East Parham Road: Concept



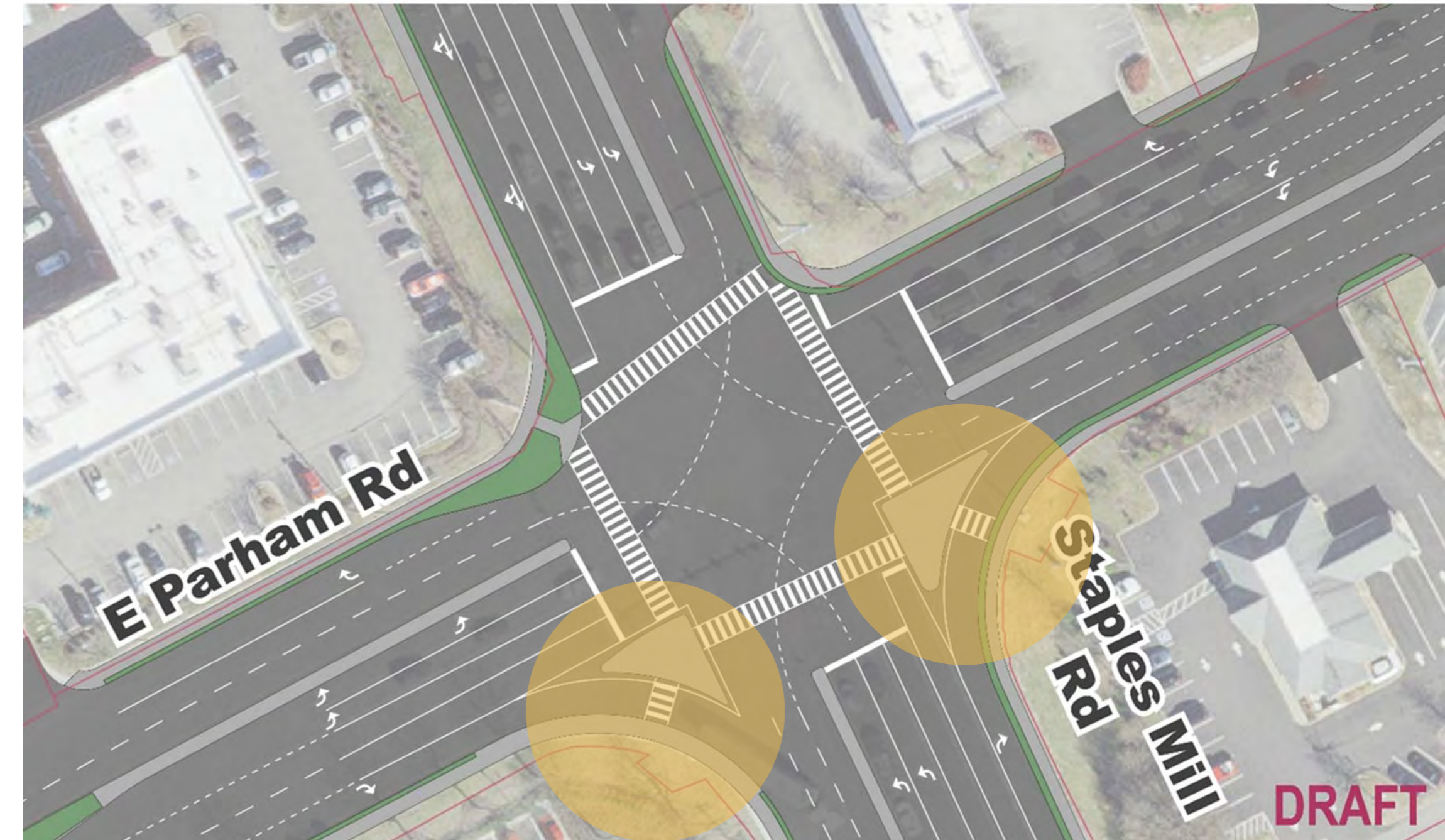
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- Intersection Elements**
- ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ADD NO RIGHT-TURN ON RED
 - ADD INTERSECTION LIGHTING
 - IMPLEMENT LEADING PEDESTRIAN INTERVAL
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|---|---|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and buses, and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment and transit. | No right-of-way impacts and minor drainage impacts. |

Slip lane removal analysis

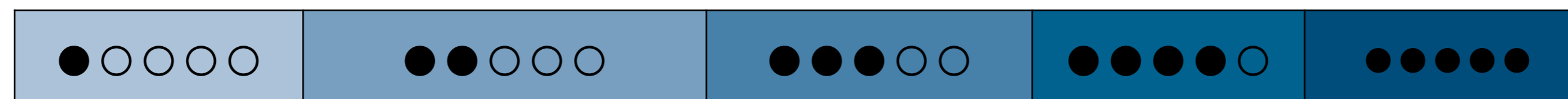
- Vehicle Delay:
 - AM Peak Conditions: Increase in vehicle delay (+6.4 seconds per vehicle)
 - PM Peak Conditions: Increase in vehicle delay (+4.7 seconds per vehicle)
- Level of Service:
 - AM Peak: Increase from LOS D to LOS E
 - PM Peak: No Change
- Maximum Queues
 - Vehicle storage lengths accommodate max queues
- Pedestrian exposure
 - Reduced crossing distances and time
- Freight Access
 - AutoTURN checks needed



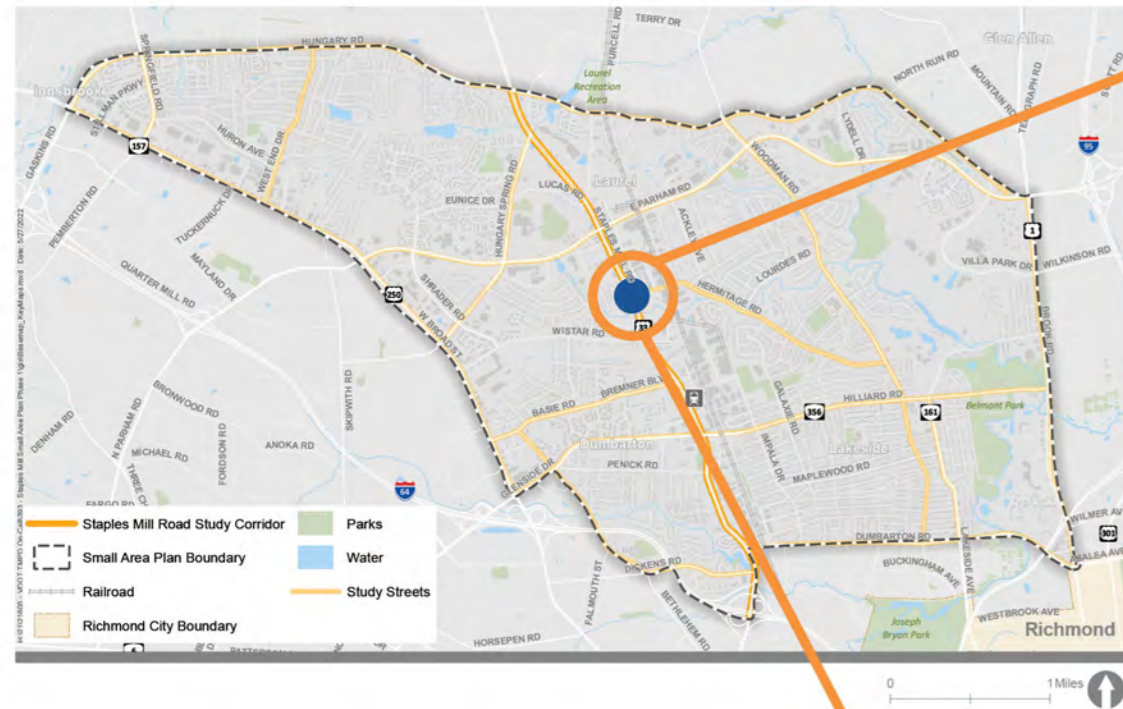
Intersection Options – Part 1

| | Manage Congestion | Community and Environmental Health | Support Economic Development | Improve Safety and Comfort | Reflect Community Character | Survey Ranking |
|--|-------------------|------------------------------------|------------------------------|----------------------------|-----------------------------|----------------|
| Existing: Springfield Road and Gaskins Road/Hungary Road | ●○○○○○ | ●●○○○○ | ●●○○○○ | ●●○○○○ | ●●●○○○ | 1.50 |
| Proposed: Springfield Road and Gaskins Road/Hungary Road | ●●○○○○ | ●●○○○○ | ●●○○○○ | ●●●○○○ | ●●●●●● | 4.39 |
| | | | | | | |
| Existing: Staples Mill Road and Hungary Road | ●○○○○○ | ●●○○○○ | ●●○○○○ | ●○○○○○ | ●●●○○○ | 1.50 |
| Proposed: Staples Mill Road and Hungary Road | ●●●○○○ | ●●●○○○ | ●●●●○○ | ●●●○○○ | ●●●●●● | 4.32 |
| | | | | | | |
| Existing: Staples Mill Road and Hungary Spring Road | ●●○○○○ | ●●○○○○ | ●●○○○○ | ●○○○○○ | ●●●○○○ | 1.51 |
| Proposed: Staples Mill Road and Hungary Spring Road | ●●●○○○ | ●●●●○○ | ●●●●○○ | ●●●○○○ | ●●●●●● | 4.34 |
| | | | | | | |
| Existing: Staples Mill Road and East Parham Road | ●○○○○○ | ●●○○○○ | ●●○○○○ | ●●○○○○ | ●●●○○○ | 1.53 |
| Proposed: Staples Mill Road and East Parham Road | ●●●●○○ | ●●●●○○ | ●●●●○○ | ●●●●○○ | ●●●●●● | 4.32 |

Lowest Scoring ← → Highest Scoring

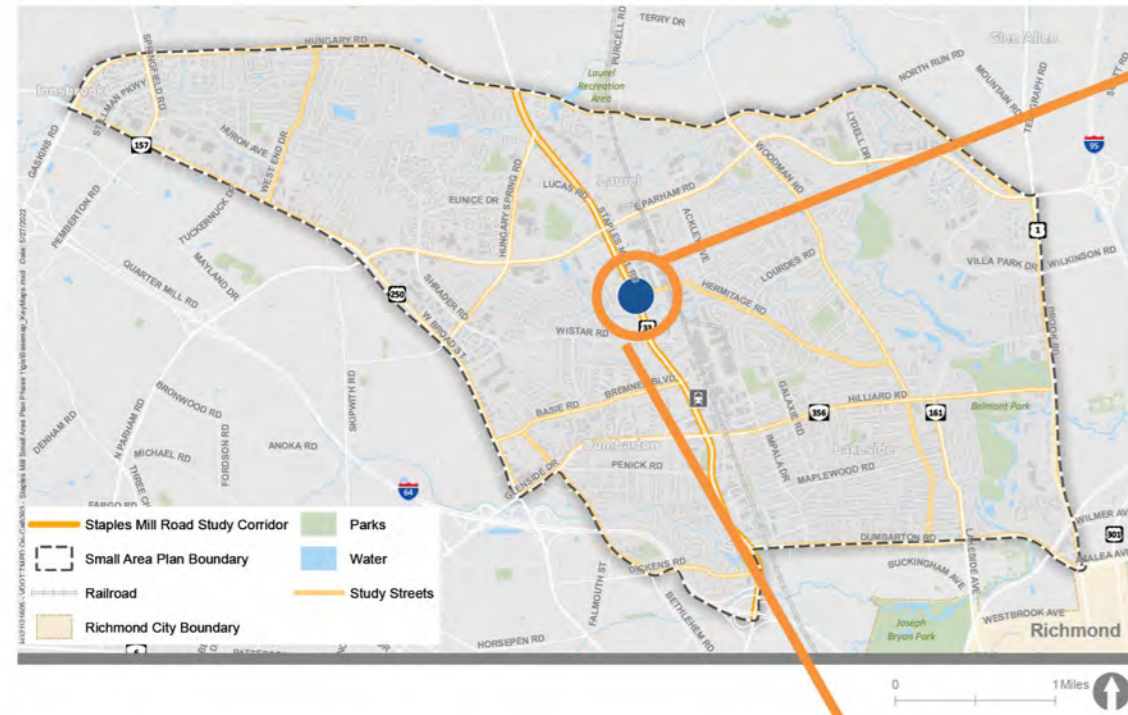


Staples Mill Road and Hermitage Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|---|--|
| Intersection experiences safety challenges and narrow sidewalks. | Motorists generally don't experience delays. Pedestrians experience delay all day. | Intersection has missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment and transit. | No right-of-way impacts or drainage impacts. |

Staples Mill Road and Hermitage Road: Concept

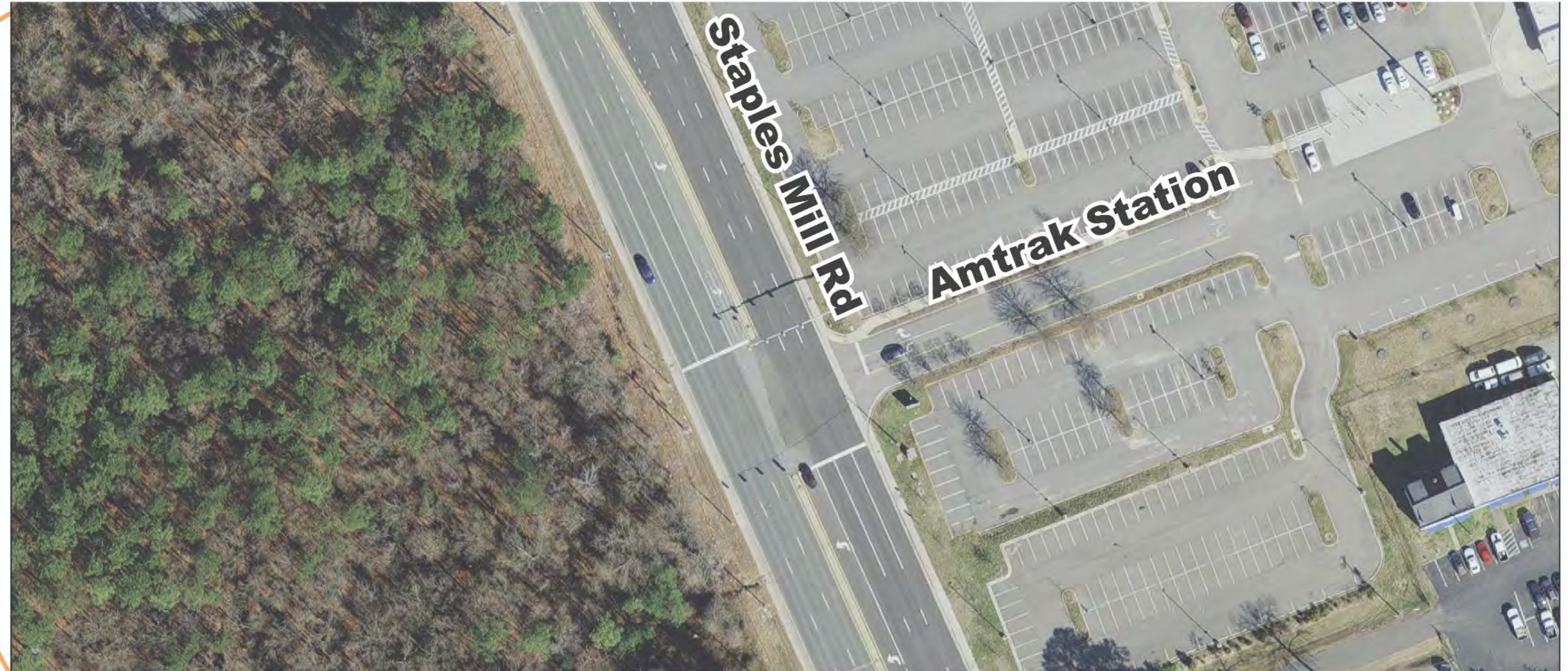
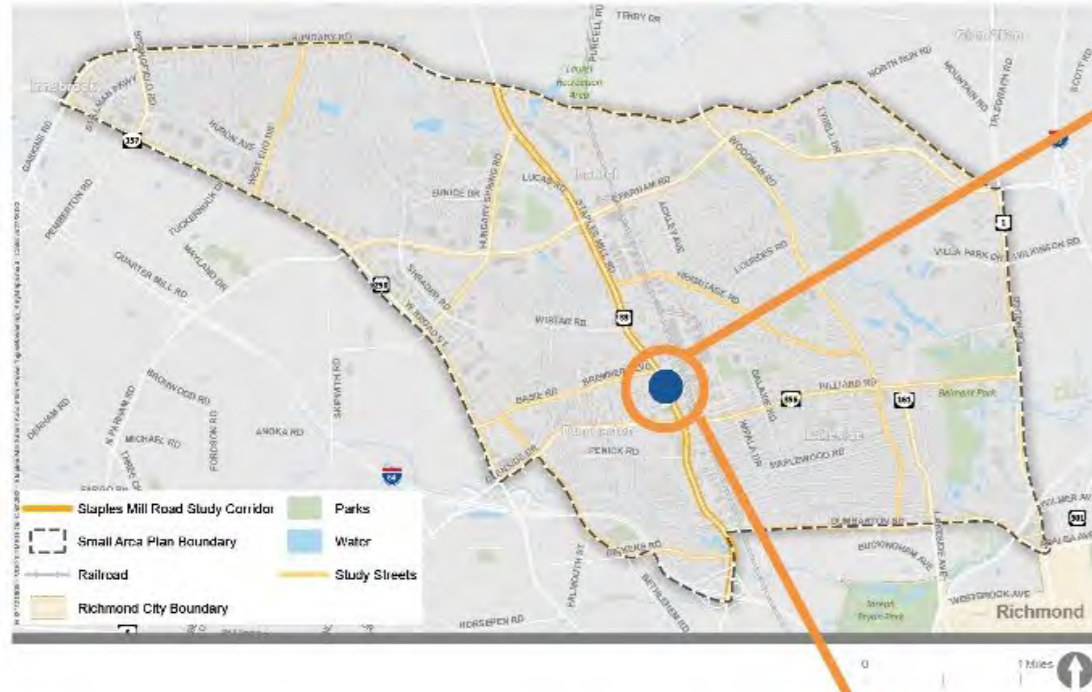


N
Not To Scale

- Intersection Elements**
- IMPLEMENT LEADING PEDESTRIAN INTERVAL
 - ADD INTERSECTION LIGHTING
 - ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ADD NO RIGHT-TURN ON RED
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|---|---|--|--|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Slightly increases travel time for cars and buses, and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provide multimodal facilities connected to employment and transit. | Minor right-of-way and drainage impacts. |

Staples Mill Road and Amtrak Station: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|----------------------------|--|---|---|--|
| No pedestrian crossings. | Motorists generally don't experience delays. Pedestrians experience delay all day. | Intersection has many missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment and transit. | No right-of-way impacts or drainage impacts. |

Staples Mill Road and Amtrak Station: Concept

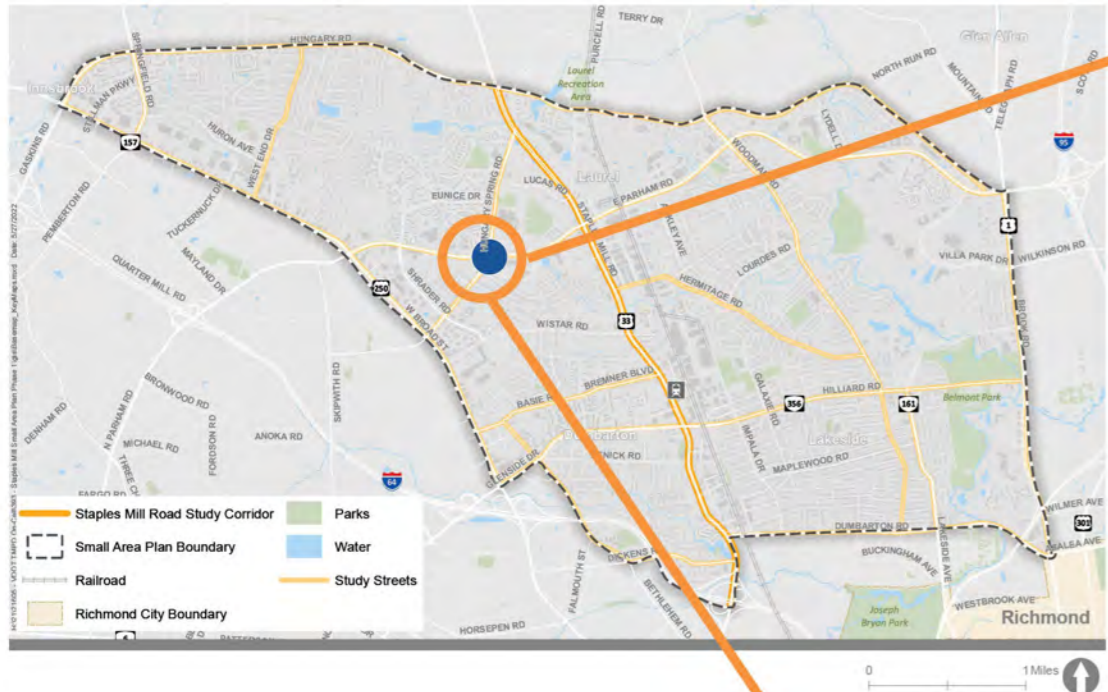


N
Not To Scale

- Intersection Elements**
- IMPLEMENT LEADING PEDESTRIAN INTERVAL
 - ADD INTERSECTION LIGHTING
 - ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ADD NO RIGHT-TURN ON RED
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

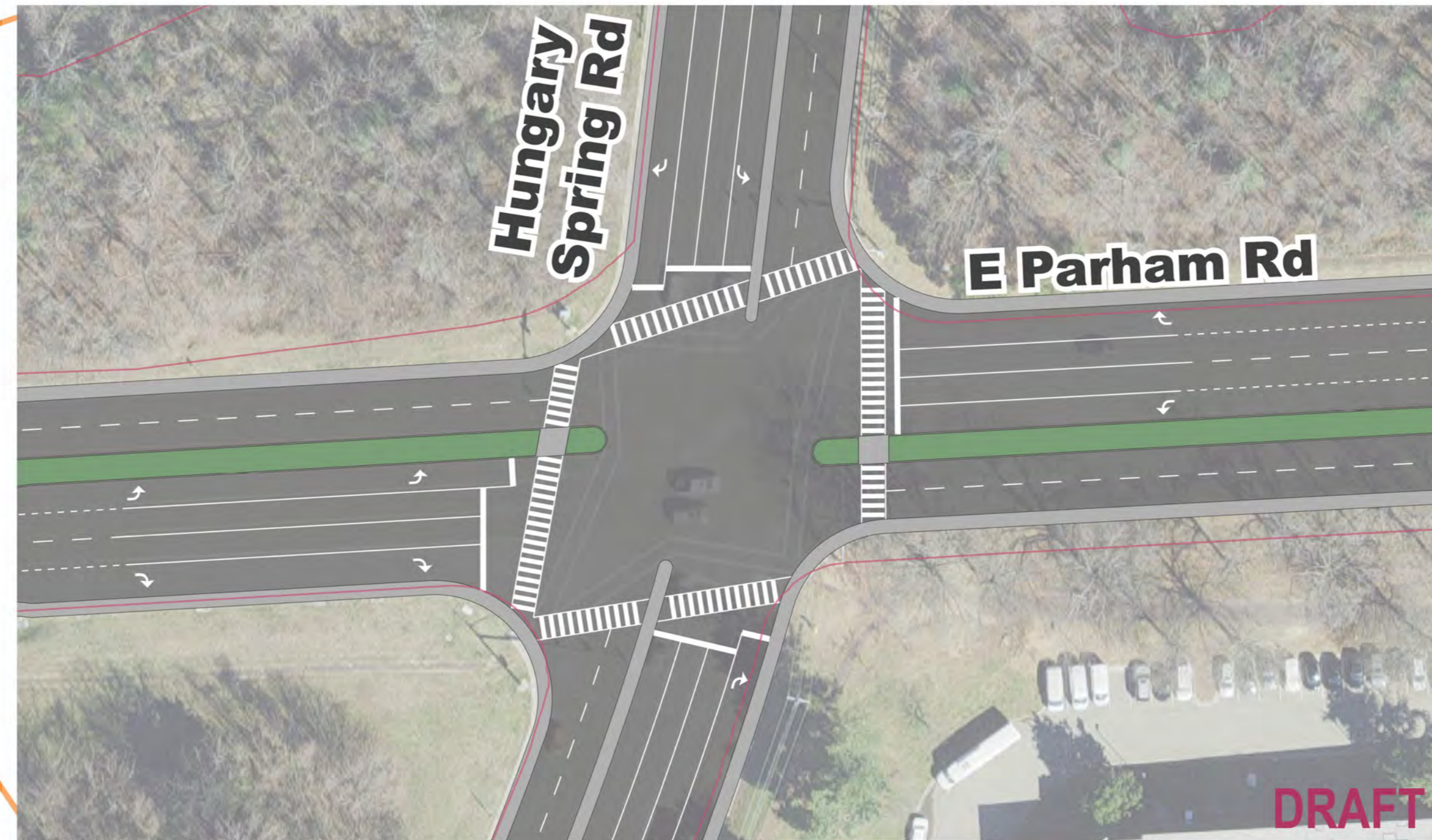
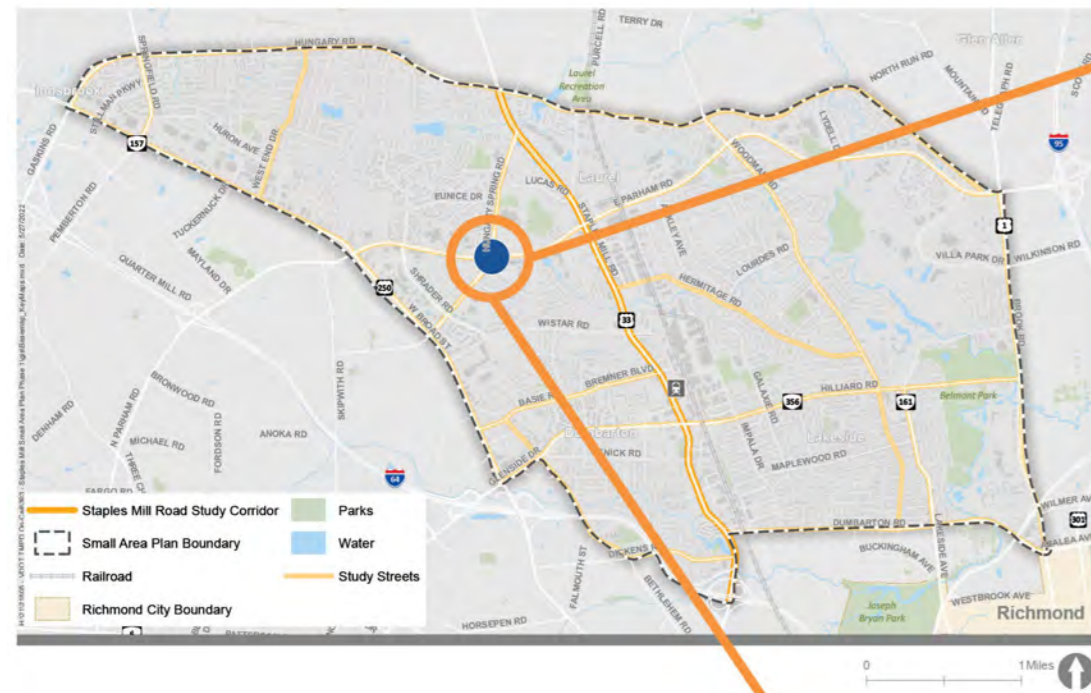
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|--|--|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and buses, and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provide multimodal facilities connected to employment and transit. | Minor right-of-way and drainage impacts. |

East Parham Road and Hungary Spring Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|--|---|--|
| High crash intersection and outdated pedestrian crossings. | Motorists generally don't experience delays. Pedestrians experience delay all day. | Intersection has missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment and transit. | No right-of-way impacts or drainage impacts. |

East Parham Road and Hungary Spring Road: Concept

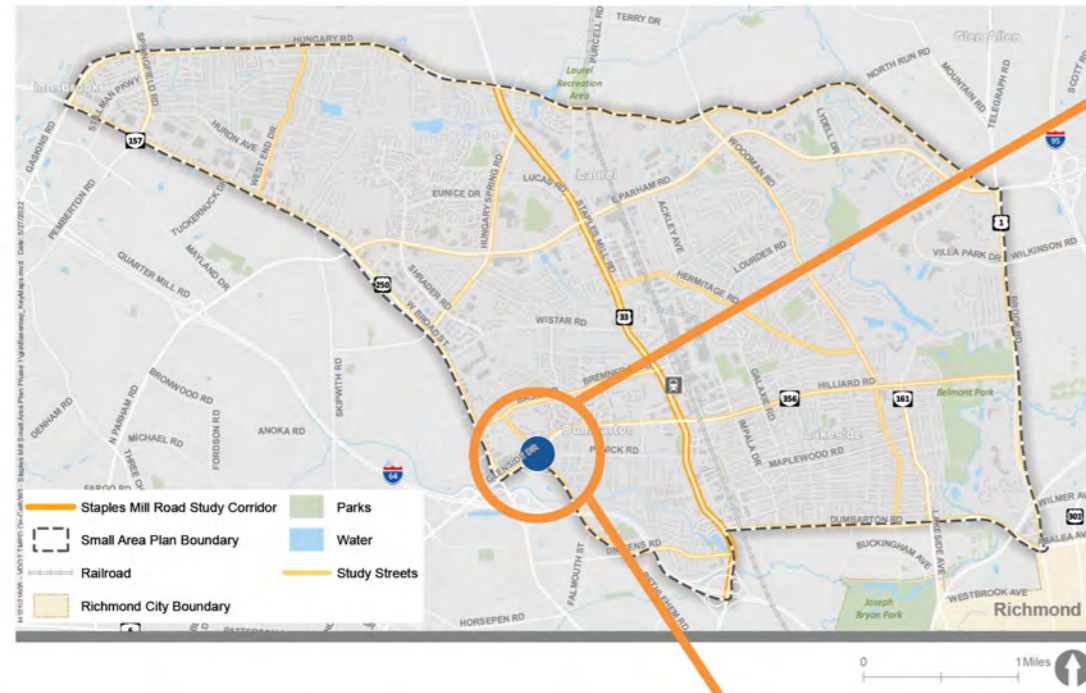


N
Not To Scale

- Intersection Elements**
- UPDATE SIGNAL HARDWARE
 - ADD INTERSECTION LIGHTING
 - ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

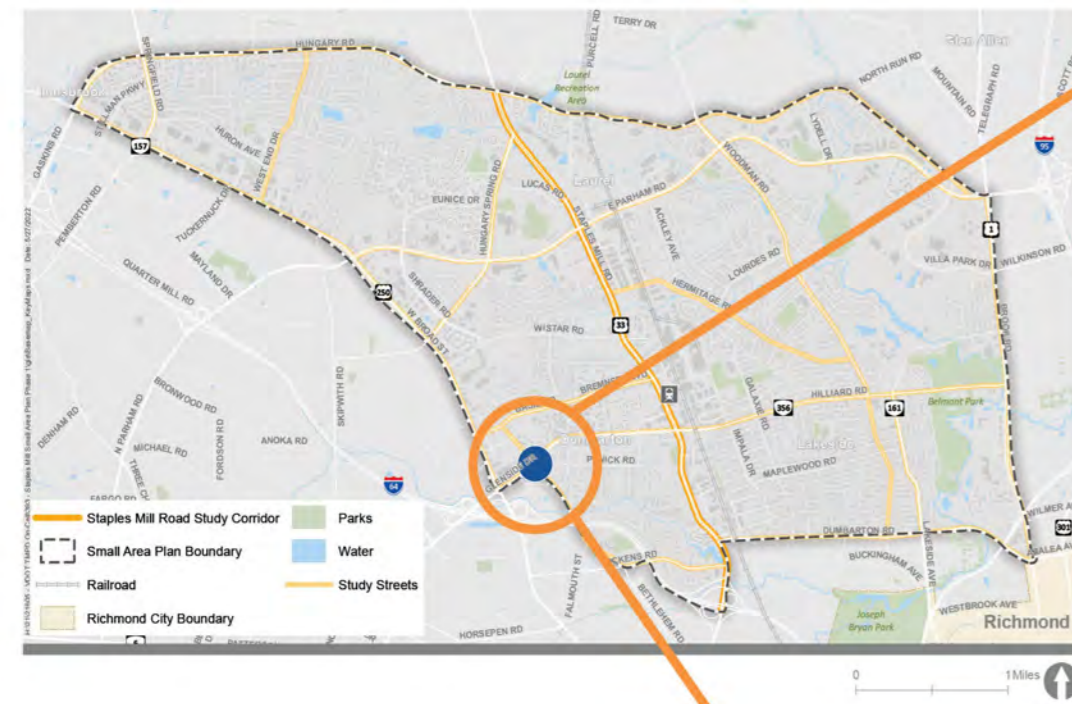
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|--|--|
| Increases pedestrian visibility with enhanced crosswalks and signal timing. Reduces crossing distance for pedestrians. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and buses, and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provide multimodal facilities connected to employment and transit. | Minor right-of-way and drainage impacts. |

Glenside Drive and Bethlehem Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|---|---|--|
| High crash intersection with no pedestrian crossings. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has many missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment. | No right-of-way impacts or drainage impacts. |

Glenside Drive and Bethlehem Road: Concept



N
Not To Scale

Intersection Elements

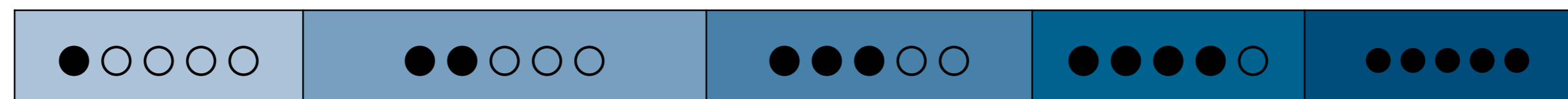
- ADD PEDESTRIAN SIGNAL HEADS
- UPGRADE CURB RAMPS
- UPDATE SIGNAL HARDWARE
- PROVIDE PROTECTED LEFT TURN PHASE
- ASPHALT
- SIDEWALK/MEDIAN
- LANDSCAPE
- PARCEL LINES

| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|--|---|--|--|
| Increases pedestrian visibility with crosswalks and signal timing. Reduces crossing distance for pedestrians. Addresses motorist crashes with travel lane and signal timing adjustments. | Improves travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provide multimodal facilities connected to employment. | Minor right-of-way and drainage impacts. |

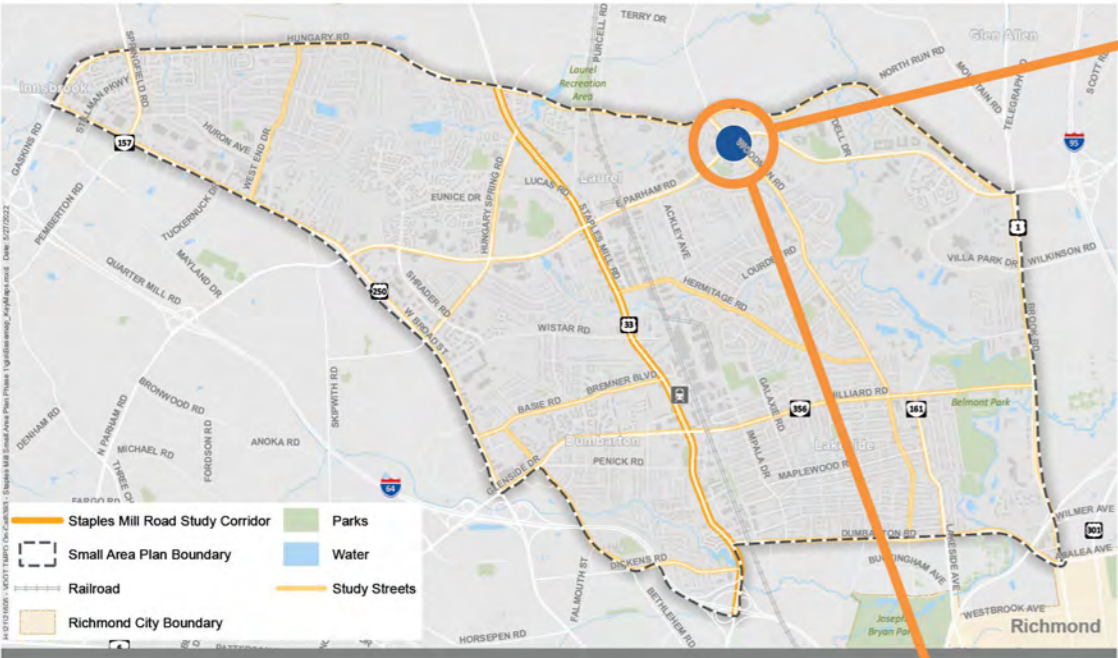
Intersection Options – Part 2

| | Manage Congestion | Community and Environmental Health | Support Economic Development | Improve Safety and Comfort | Reflect Community Character | Survey Ranking |
|--|-------------------|------------------------------------|------------------------------|----------------------------|-----------------------------|----------------|
| Existing: Staples Mill Road and Hermitage Road | ●●○○○ | ●●○○○ | ●●○○○ | ●●○○○ | ●●●○○ | 1.58 |
| Proposed: Staples Mill Road and Hermitage Road | ●●●●○ | ●●●●○ | ●●●●○ | ●●●○○ | ●●●●● | 4.31 |
| | | | | | | |
| Existing: Staples Mill Road and Amtrak Station | ●●○○○ | ●●●○○ | ●●○○○ | ●●○○○ | ●●●○○ | 1.42 |
| Proposed: Staples Mill Road and Amtrak Station | ●●●●○ | ●●●●● | ●●●●○ | ●●●○○ | ●●●●● | 4.48 |
| | | | | | | |
| Existing: East Parham Road and Hungary Spring Road | ●●○○○ | ●●●○○ | ●●○○○ | ●●●○○ | ●●●○○ | 1.50 |
| Proposed: East Parham Road and Hungary Spring Road | ●●●○○ | ●●●●○ | ●●●●○ | ●●●●○ | ●●●●● | 4.43 |
| | | | | | | |
| Existing: Glenside Drive and Bethlehem Road | ●●○○○ | ●●○○○ | ●●○○○ | ●●○○○ | ●●●○○ | 1.46 |
| Proposed: Glenside Drive and Bethlehem Road | ●●●●○ | ●●●○○ | ●●●○○ | ●●●○○ | ●●●●● | 4.34 |

Lowest Scoring ← → Highest Scoring

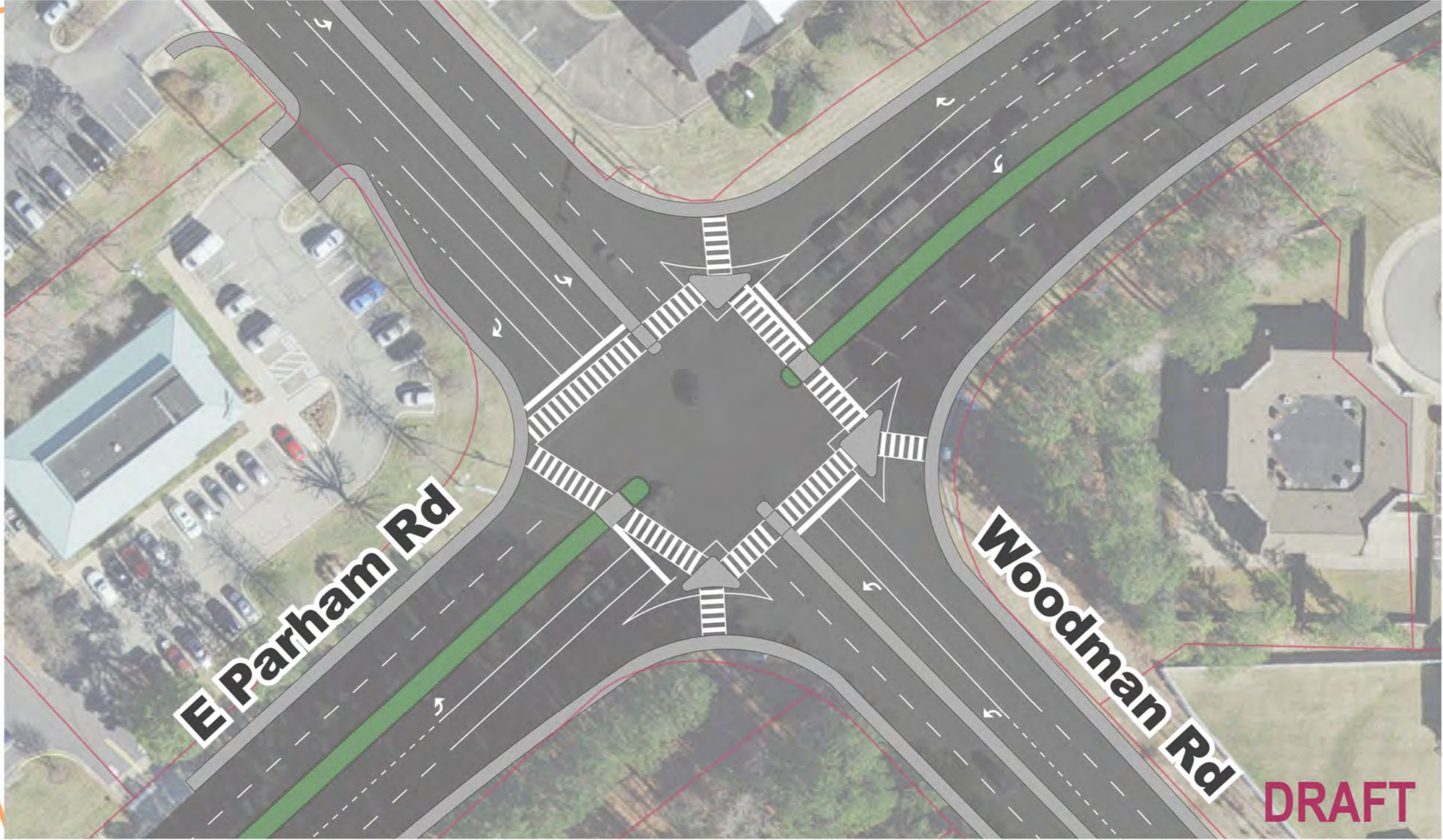
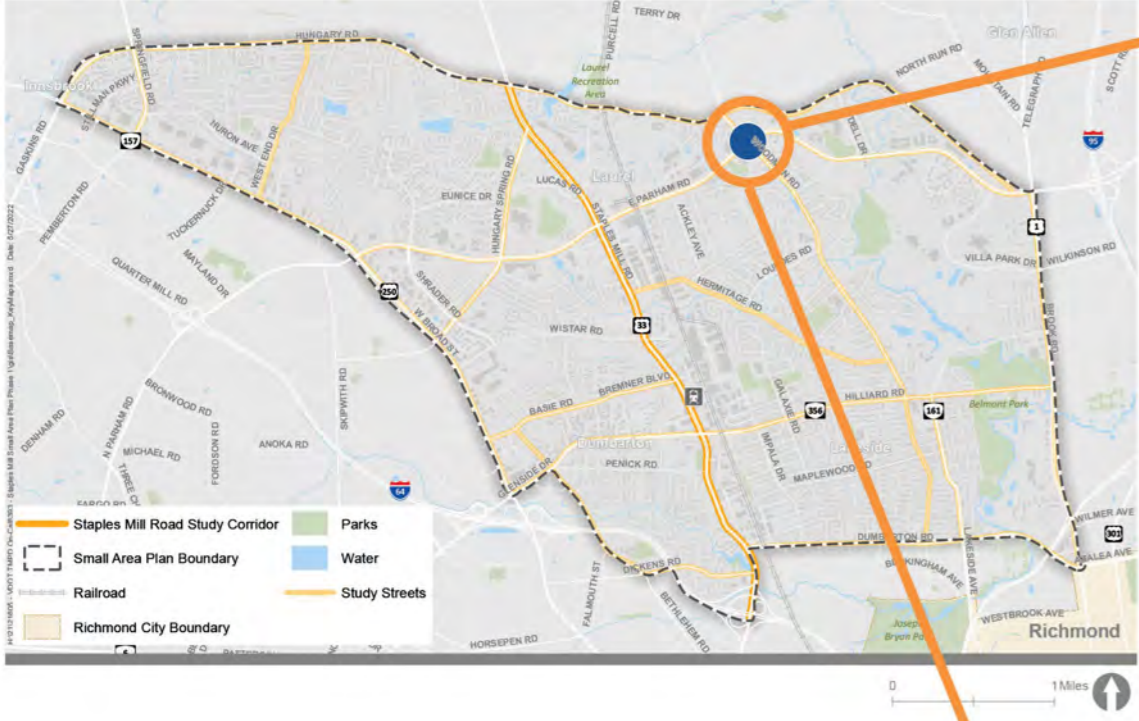


East Parham Road and Woodman Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|--|--|---|--|
| High crash intersection with no pedestrian crossings. | Motorists generally don't experience delays. Pedestrians experience delay all day. | Intersection has no multimodal facilities for people walking and biking. | No multimodal facilities connected to employment. | No right-of-way impacts or drainage impacts. |

East Parham Road and Woodman Road: Concept



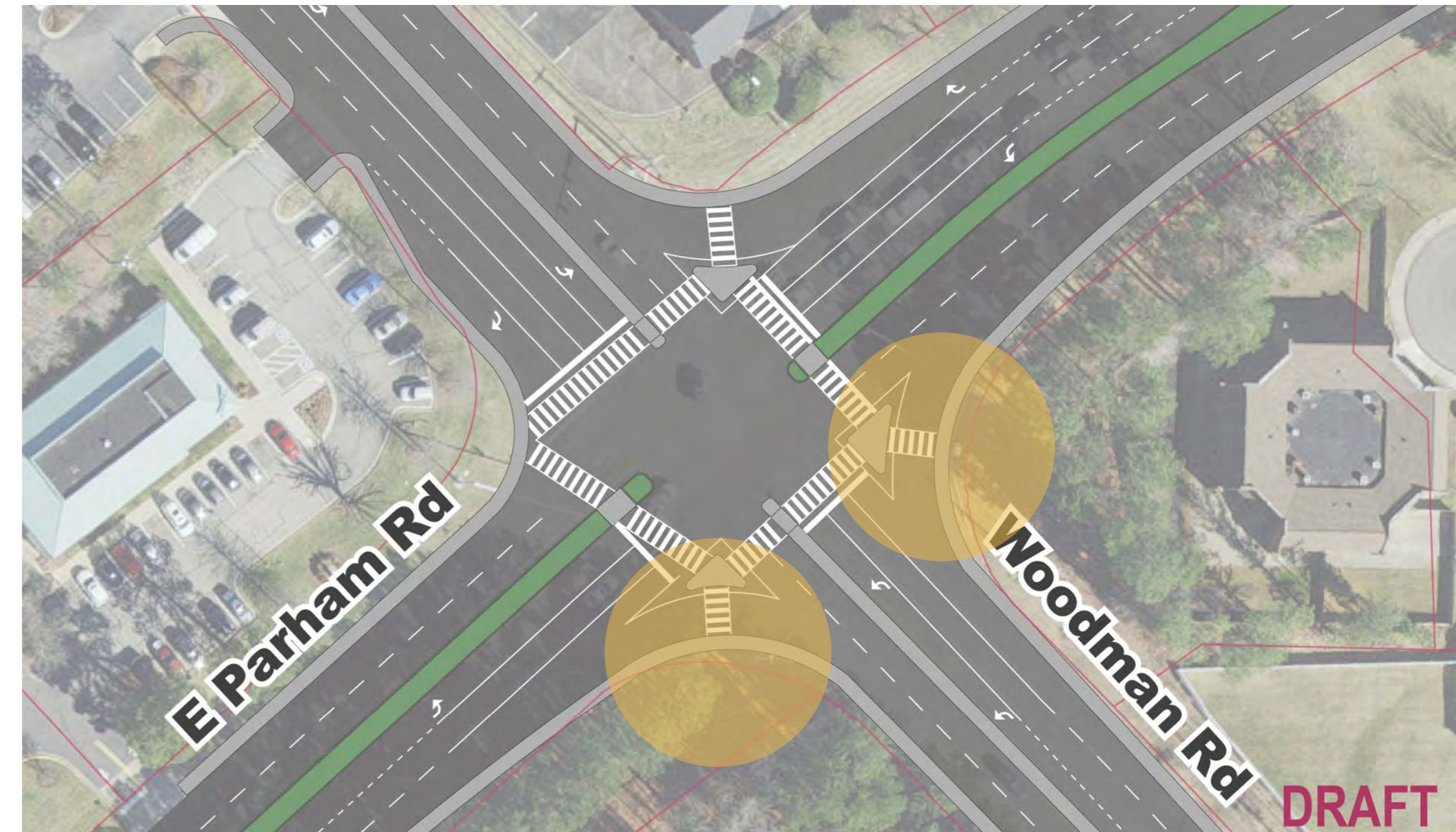
N
Not To Scale

- Intersection Elements**
- UPDATE SIGNAL HARDWARE
 - ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

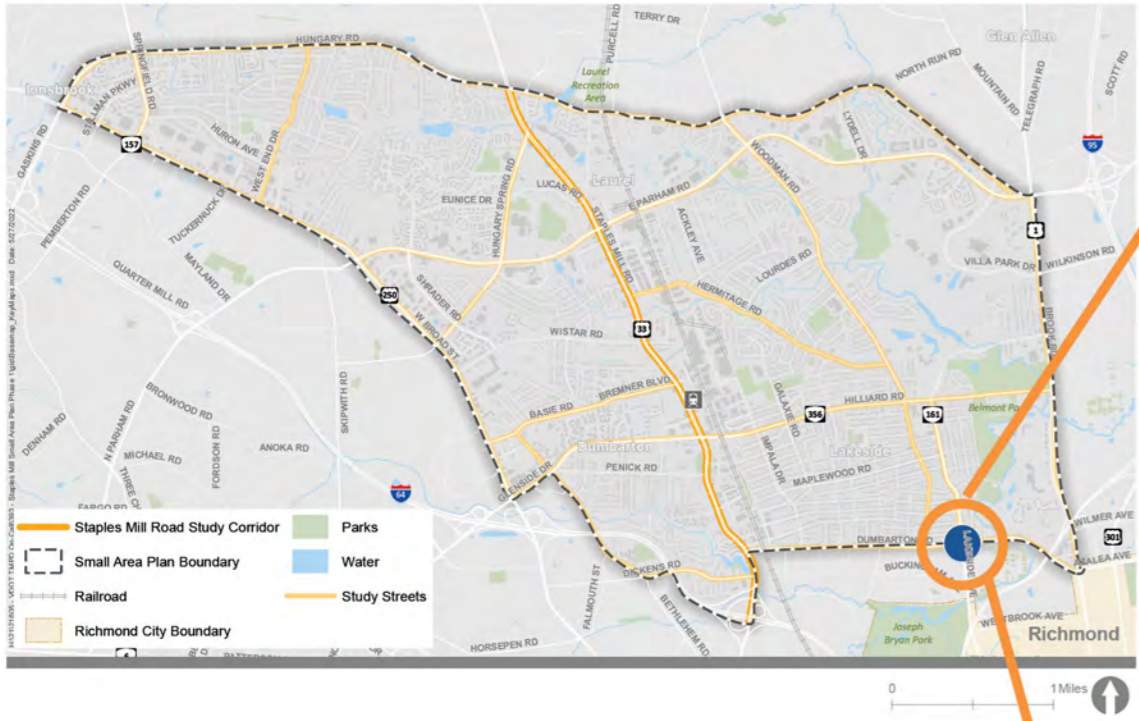
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|---|---|--|
| Increases pedestrian visibility with crosswalks and signal timing. Reduces crossing distance for pedestrians. | Maintains travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment. | Minor right-of-way and drainage impacts. |

Slip lane removal analysis

- Vehicle Delay:
 - AM Peak Conditions: Increase in vehicle delay (**+8.1 seconds** per vehicle)
 - PM Peak Conditions: Increase in vehicle delay (**+13.9 seconds** per vehicle)
- Level of Service:
 - AM Peak: No Change
 - PM Peak: Increase from LOS C to LOS D
- Maximum Queues
 - Max queue exceeds NBR vehicle storage by 4 feet during AM Peak
- Pedestrian exposure
 - Reduced crossing distances and time
- Freight Access
 - AutoTURN checks needed

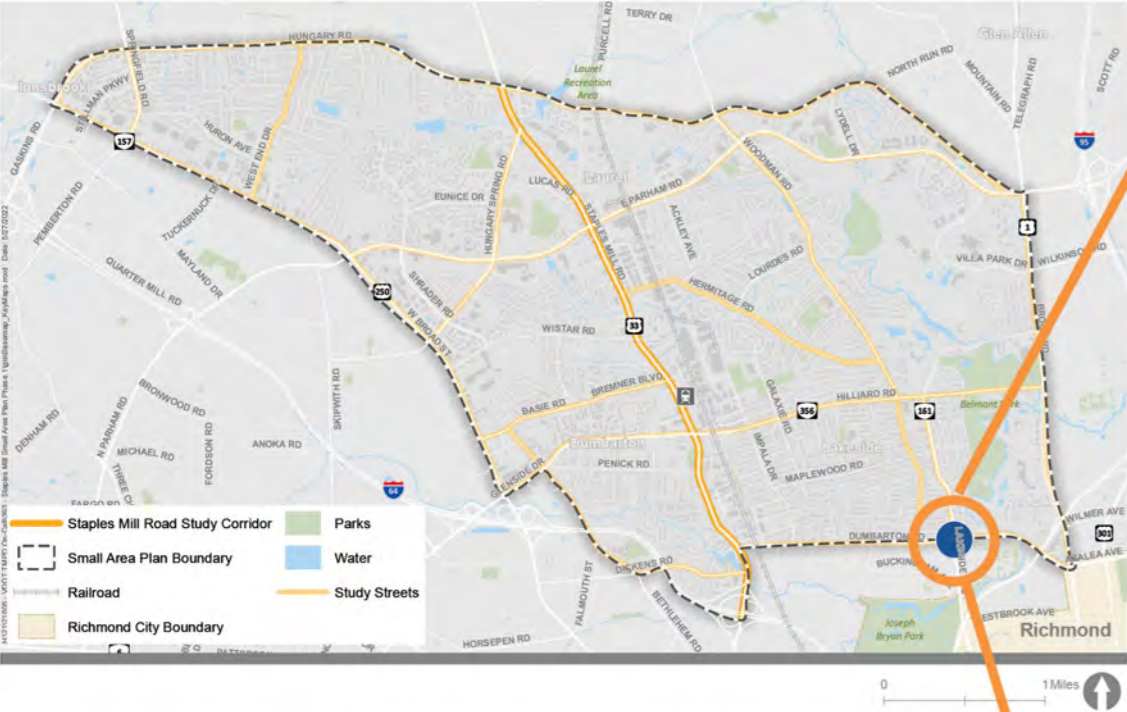


Lakeside Drive and Dumbarton Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|----------------------------|---|--|---|--|
| High crash intersection. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment. | No right-of-way impacts or drainage impacts. |

Lakeside Drive and Dumbarton Road: Concept

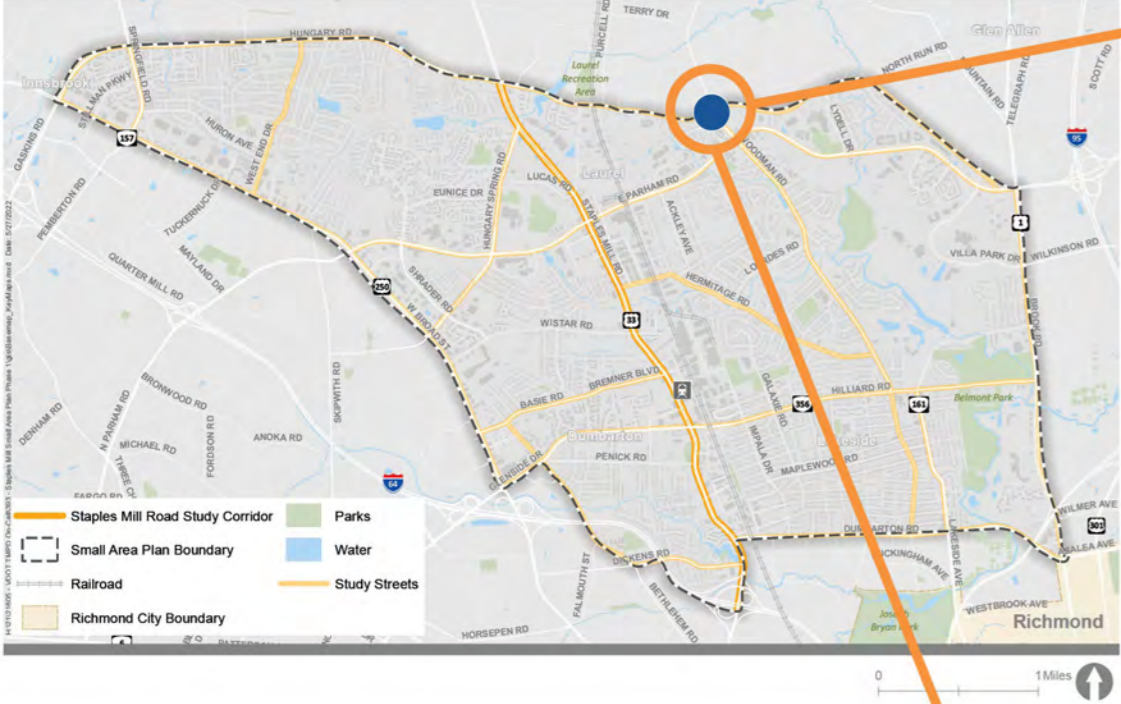


N
Not To Scale

- Intersection Elements**
- IMPLEMENT LEADING PEDESTRIAN INTERVAL
 - UPGRADE CURB RAMPS
 - ADD NO RIGHT-TURN ON RED
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

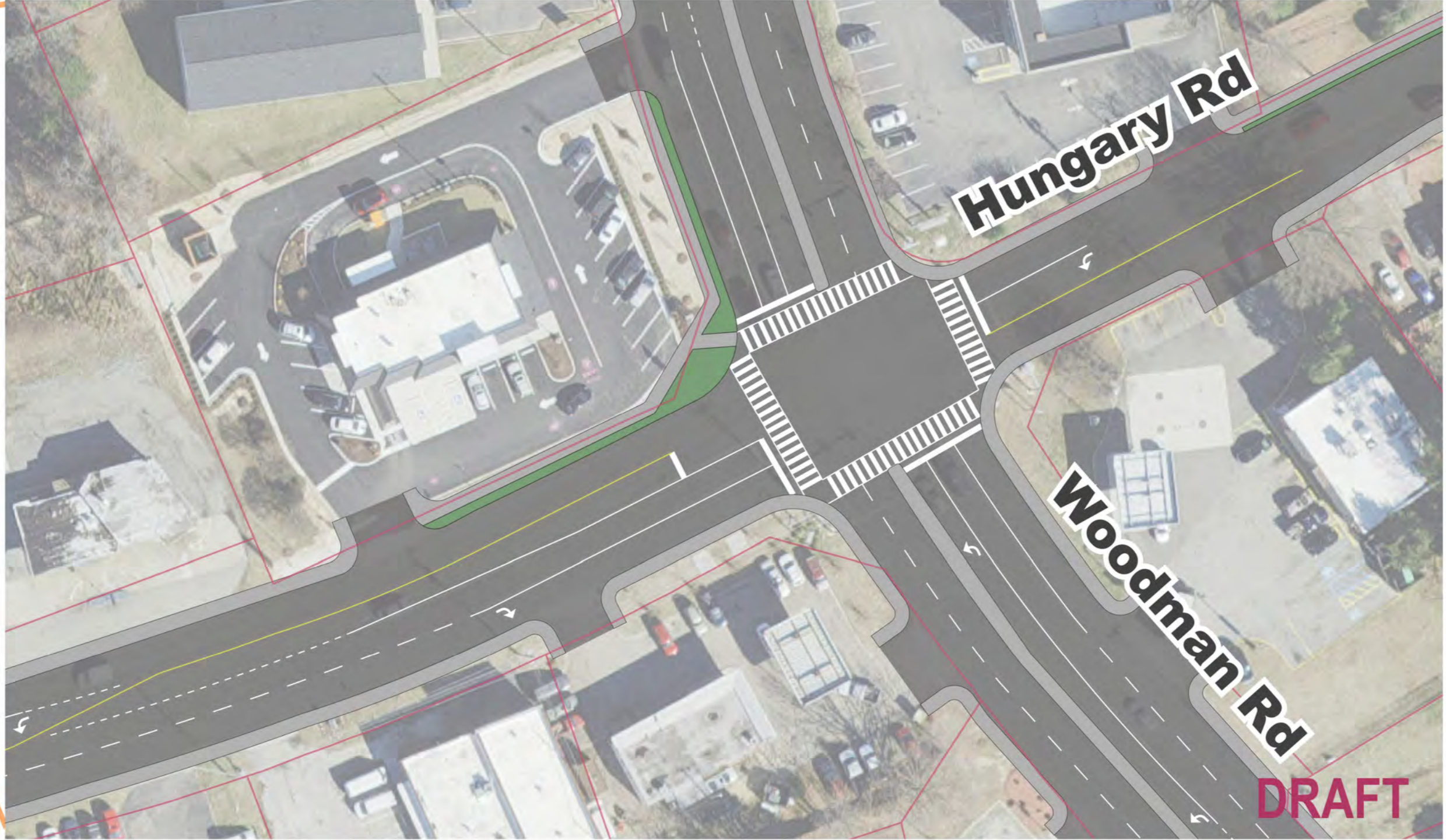
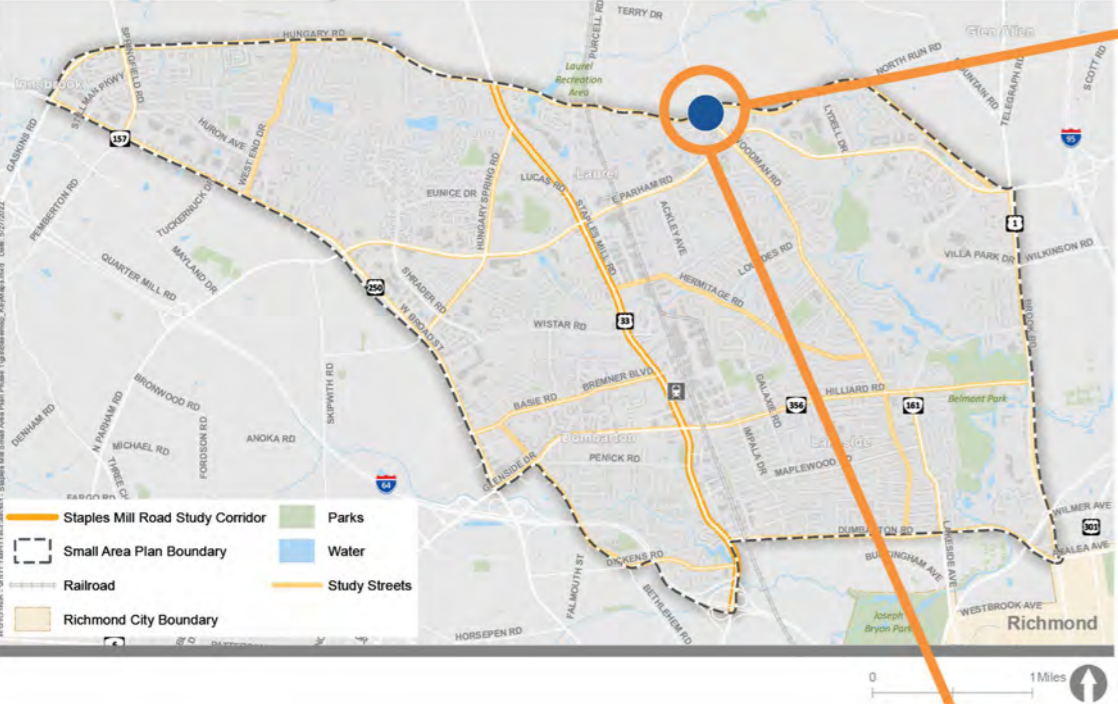
| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|---|---|---|---|
| Increases pedestrian visibility with enhanced crosswalks and signal timing. Reduces crossing distance for pedestrians. | Maintains travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment. | No right-of-way impacts and minor drainage impacts. |

Hungary Road and Woodman Road: Existing



| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|---|---|---|---|--|
| High crash intersection with no pedestrian crossings. | Motorists experience delays during rush hour. Pedestrians experience delay all day. | Intersection has many missing facilities for people walking and biking. | Multimodal facilities are disconnected from employment. | No right-of-way impacts or drainage impacts. |

Hungary Road and Woodman Road: Concept



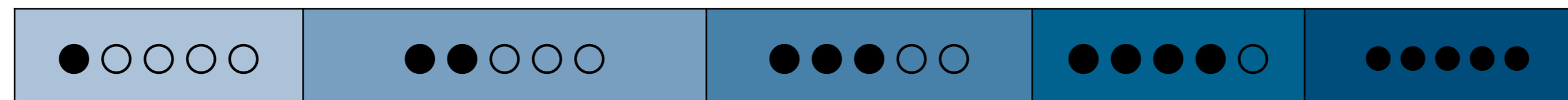
- Intersection Elements**
- ADD PEDESTRIAN SIGNAL HEADS
 - UPGRADE CURB RAMPS
 - ADD NO RIGHT-TURN ON RED
 - UPDATE SIGNAL HARDWARE
 - ADD INTERSECTION LIGHTING
 - IMPLEMENT LEADING PEDESTRIAN INTERVAL
 - ASPHALT
 - SIDEWALK/MEDIAN
 - LANDSCAPE
 - PARCEL LINES

| Improve Safety and Comfort | Manage Congestion | Foster Community and Environmental Health | Support Economic Development | Impacts |
|--|---|---|---|--|
| Increases pedestrian visibility with crosswalks and signal timing. Improves nighttime visibility with intersection lighting. | Maintains travel time for cars and reduces pedestrian delay with signal timing. | Improves ADA-accessible crossings for bicyclists and pedestrians. | Provides multimodal facilities connected to employment. | Minor right-of-way and drainage impacts. |

Intersection Options – Part 3

| | Manage Congestion | Community and Environmental Health | Support Economic Development | Improve Safety and Comfort | Reflect Community Character | Survey Ranking |
|--|-------------------|------------------------------------|------------------------------|----------------------------|-----------------------------|----------------|
| Existing: East Parham Road and Woodman Road | ●●○○○ | ●●○○○ | ●●○○○ | ●○○○○ | ●●●○○ | 1.48 |
| Proposed: East Parham Road and Woodman Road | ●●●○○ | ●●○○○ | ●●○○○ | ●●●●○ | ●●●●● | 4.37 |
| | | | | | | |
| Existing: Lakeside Avenue and Dumbarton Road | ●●○○○ | ●●●●○ | ●●●○○ | ●●●○○ | ●●●○○ | 1.53 |
| Proposed: Lakeside Drive and Dumbarton Road | ●●●○○ | ●●●●○ | ●●●○○ | ●●●○○ | ●●●●● | 4.42 |
| | | | | | | |
| Existing: Hungary Road and Woodman Road | ●○○○○ | ●●○○○ | ●●○○○ | ●●○○○ | ●●●○○ | 1.46 |
| Proposed: Hungary Road and Woodman Road | ●●○○○ | ●●○○○ | ●●○○○ | ●●●○○ | ●●●●● | 4.34 |

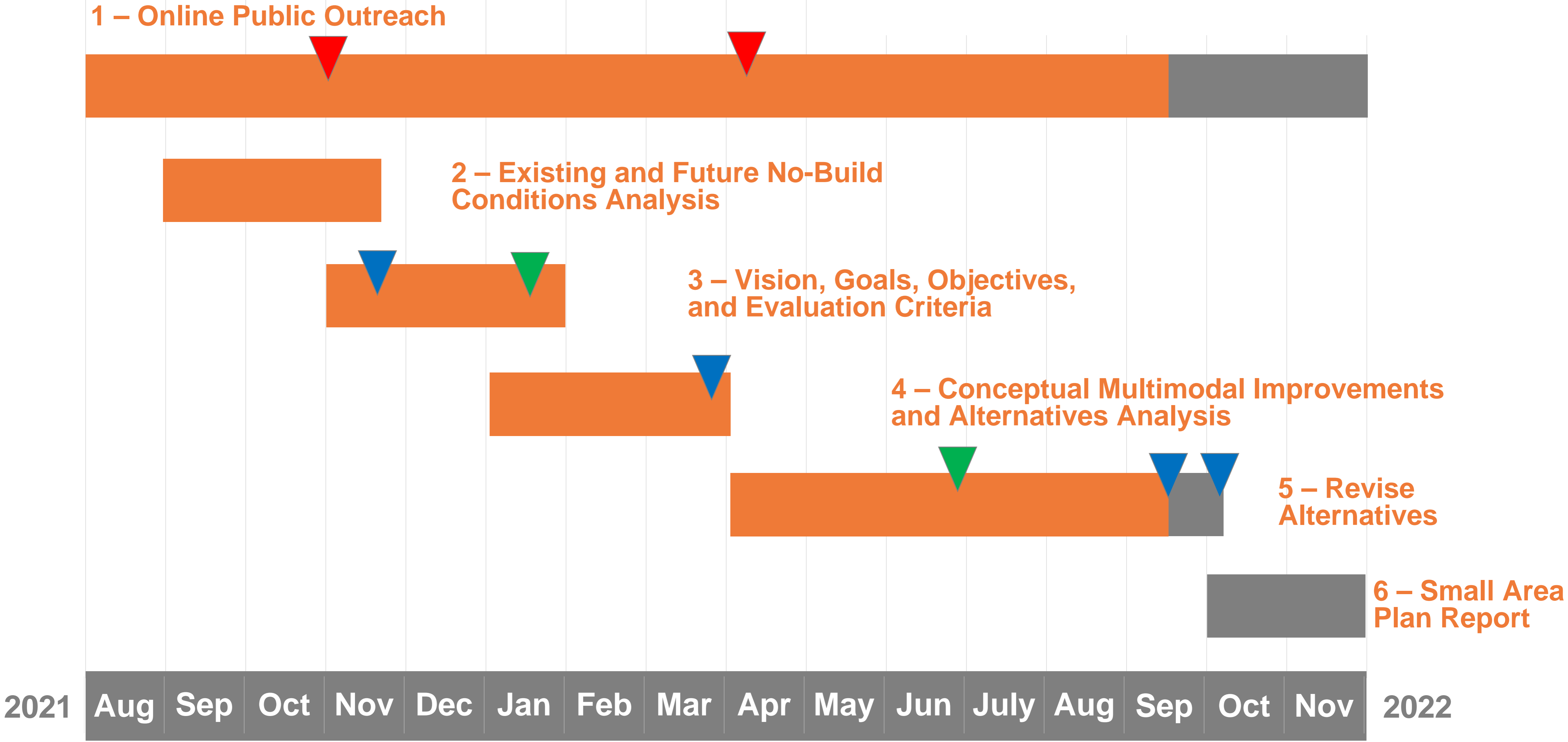
Lowest Scoring ← → Highest Scoring



Next Steps



Next Steps



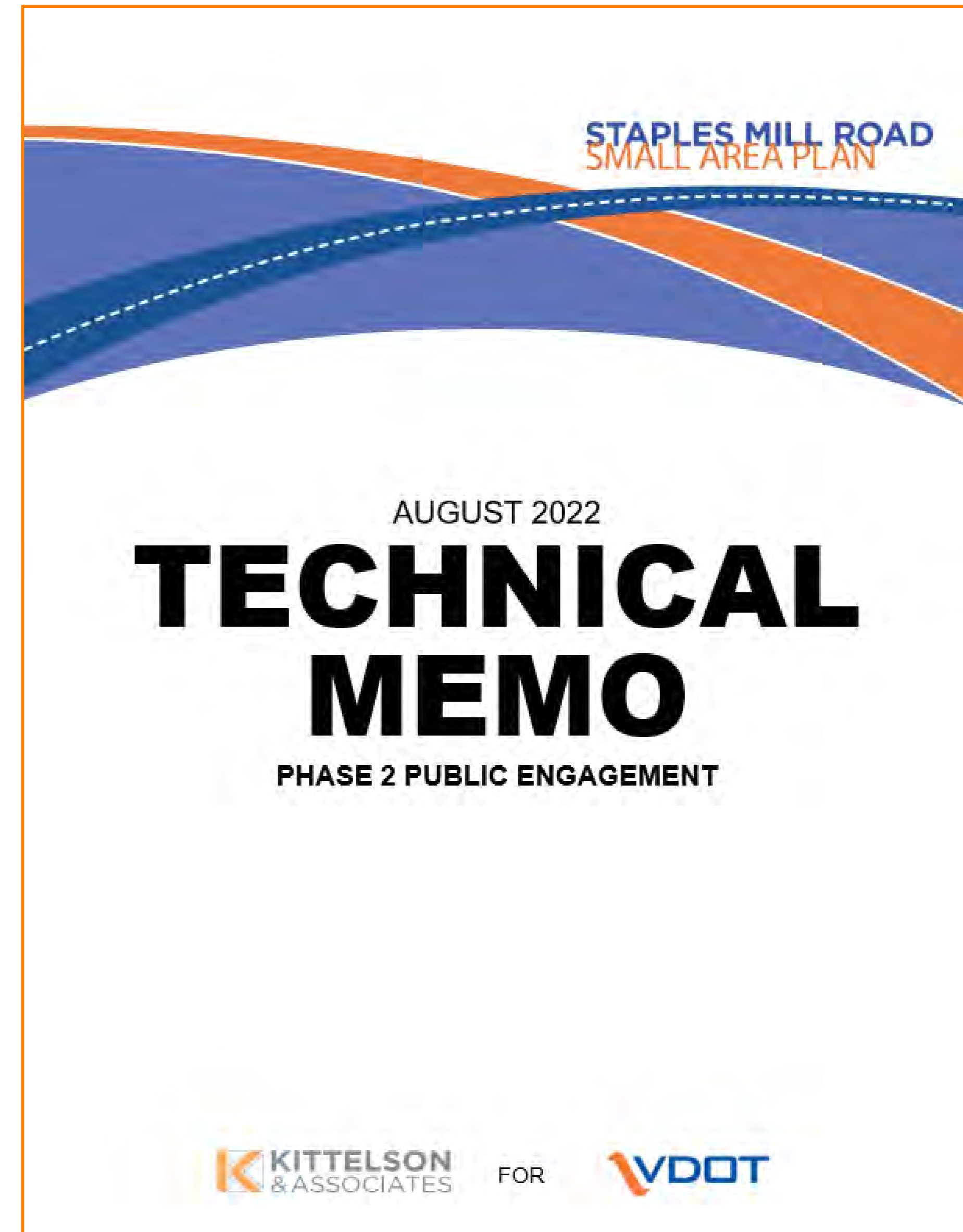
ONGOING WORK

ALTERNATIVES ANALYSIS

NEXT STEPS

In-Process Documents

- Phase 2 Public Engagement Memorandum
- Alternatives Analysis Matrix
- Planning Level Cost Estimates
- Dedicated Transit Lanes Analysis



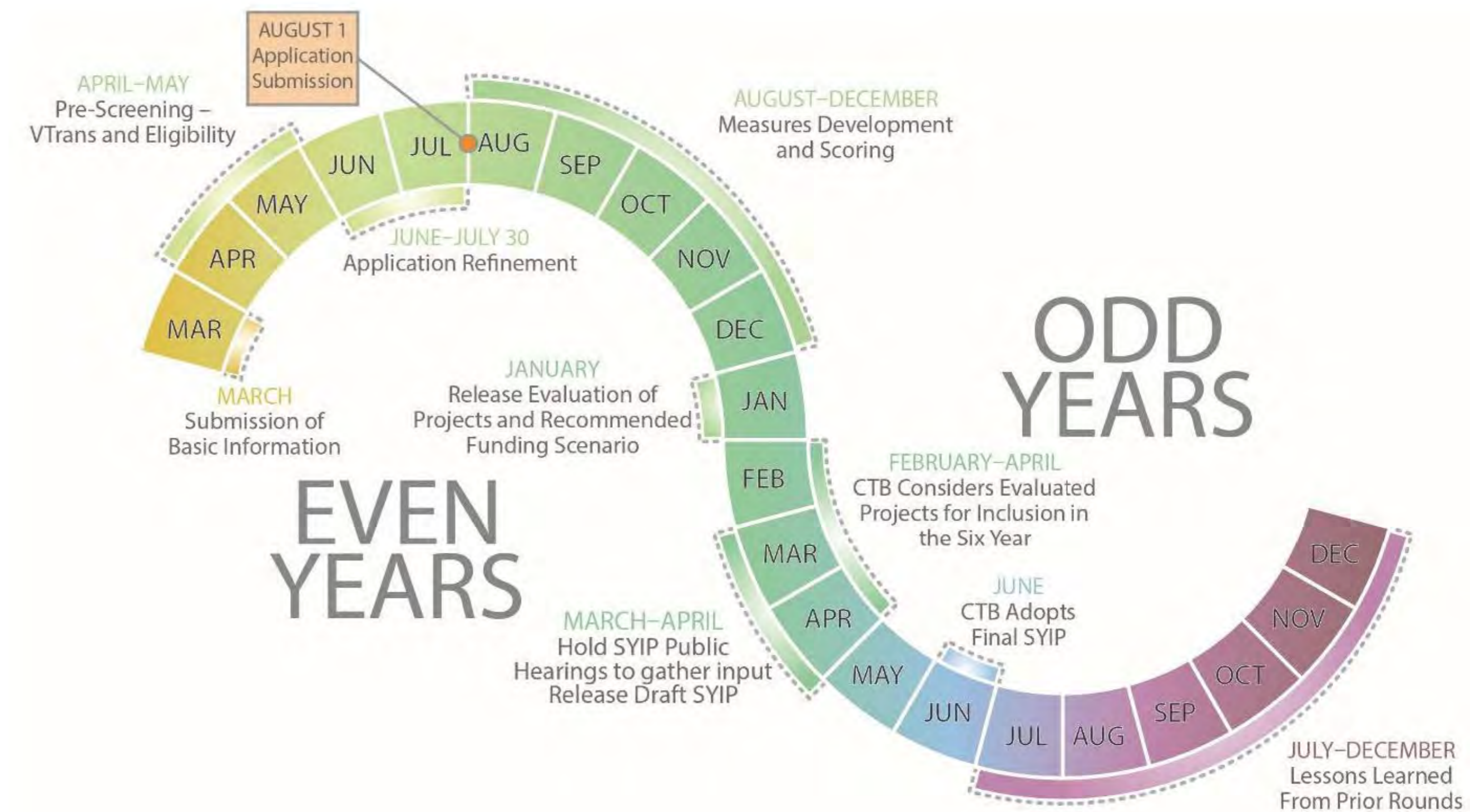
Remaining Milestones

- 1. Week of October 3:** Dedicated Transit Analysis Results
- 2. Week of October 3:** Final Stakeholder Group Meeting
- 3. Week of October 24:** First Small Area Plan Draft for Stakeholder Group
- 4. Week of October 31:** Stakeholder Group Comments Due
- 5. Week of November 14:** Final Small Area Plan Draft

After the Study

1. Secure funding for project(s)
 - Available VDOT funds
 - SMART SCALE program
 - RAISE Grants
 - Safe Streets for All Grants
2. Alternative refinement
 - Design
 - Environmental analysis
 - Community engagement
3. Construction (timeline varies)

SMART SCALE Biennial Cycle



Thank you!

For more information

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Planning Specialist

VDOT Richmond District

Nicole.Mueller@VDOT.Virginia.gov

804-774-1624